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The following are the amounts of royalty and dividends realised from 1st January 1959 :—

Period.	Royalty.	Dividend.
	RS. NP.	RS. NP.
1st January to 31st March 1959.	37,003 22	1,880 67*
1st April 1959 to 31st March 1960 ..	34,675 90	12,500 00
1st April 1960 to 31st March 1961.	1,00,953 23†	12,000 00

(b).—The particulars of profits earned by the Government for the period from 1st November 1956 to 31st December 1958 are as follows.—

Period.	Profits earned.		
	RS.	A.	P.
1st November 1956 to 31st March 1957 ..		91,613	5 7
1st April 1957 to 31st March 1958 ..	RS.	9,82,671	15 nP.
1st April to 31st December 1958 ..	RS.	1,98,501	22 nP.

APPENDIX XI.

[Vide answer to Starred Question No. 2355-V asked by Sri S. M. Annamalai at the meeting of the Legislative Assembly held on 14th December 1961, page 768 supra.]

[SUBJECT—*Small-Scale Industry Area Survey Report in North Arcot district.*]

INTRODUCTORY NOTE.

The survey of North Arcot district was undertaken by the Economic Investigation Team attached to the Small Industries Service Institute, Madras, at the instance of the State Government.

North Arcot district is an industrially undeveloped area in the State. There are not many large-scale units in the district. The only ones worth mentioning are two spinning mills and a factory producing acids, chemicals, fertilisers, etc. In the small-scale sector leather tanning, light engineering, matches, art silk weaving are the main industries but they too are not well-organised. Mat-weaving, beedi making, lungi and pure silk weaving, druggets and carpet making, manufacture of jaggery and domestic utensils are some of the important cottage and village industries in the district.

As a result of the efforts of the State Government for the Industrial development of the district, a co-operative sugar mill has been established and a number of new industrial training centres have been started in the district. An industrial colony at Kalpati is also under way.

The district offers a good market for a wide range of goods. Vellore is the principal market. Market studies reveal that there is good demand for electrical goods, automobile parts, hardware items, furniture, steel trunks, footwear, domestic utensils, bicycles and spares in the district.

On the basis of the analysis of the resources and demand, there appears to be good scope for new industries like sandalwood oil, fluorescent chokes, animal shoe nails, radio components, bicycles

* This amount was paid by way of interest on the value of the assets of the Manavalakurichi Mineral Concern transferred by this Government to the Company, in lieu of dividend.

† Provision made in the accounts of the company, but not yet paid.

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parts and components, link clips, wire nails, paper, printing roller composition and crown corks. The other industries suggested for development are industrial alcohol and leather board, based on the industrial wastes available in the district.

It is hoped that the suggestions and recommendations made in the report will help the development of existing and new industries in the district.

NOTE ON THE RATING SYSTEM FOR INDUSTRIES.

RATING A.—Excellent Prospects. The Small Industries Service Institute can go all out to encourage technical improvement and expansion with confidence that the effects will be beneficial.

RATING B.—Moderately good prospects or good prospects with special circumstances. The Small Industries Service Institute should do all it can to help the industry but care will be required to ensure that beneficial effects in one section are not offset by harmful effects elsewhere.

RATING C.—Poor prospects. The Small Industries Service Institute should assist firms in an industry with this rating to switch to other products and should assist labour to transfer to other occupations.

CHAPTER I.

INTRODUCTION.

A. OBJECTIVE AND SCOPE OF SURVEY.

The survey of North Arcot district was undertaken at the instance of the Government of Madras, by the Economic Investigation Team of the Small Industries Service Institute, Madras, in June–July 1960, with a view to assessing the scope for the development of existing industries and the potential for the starting of new small-scale industries.

B. METHOD OF SURVEY.

The basic approach to the objective in view was (1) to study the present condition of the existing industries, their problems and prospects for further development and (2) to examine such industries that can be newly started in the area depending upon the availability of natural and human resources and the demand for different consumer goods.

The major industry in the small-scale sector of the district is leather tanning. This industry had been comprehensively surveyed and a regional report on it had been prepared and recently approved by the Development Commissioner. Therefore,

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during the present survey only a small percentage (10 to 20 per cent) of the existing units in different centres was covered for bringing the data up-to-date as well as for re-examining their current problems. In the case of other industries, the samples taken for survey varied according to the number of units in each industry, i.e., smaller the samples in case of industries with a large number of units and vice versa.

The examination of new industrial possibilities involved collection of background data regarding (1) facilities for industrial development in the area, (2) resources—agricultural, forest, mineral, livestock, etc.—in the area and (3) sales of different consumer goods in the area. Information relating to facilities and resources was obtained from Government publications and State Government offices in Madras and Vellore. Data regarding the sales of different commodities in the district were obtained from important dealers in different centres of the district particularly from those in Vellore, the headquarters of the district. In addition, information regarding the new industrial possibilities was obtained from some of the M.Ps., M.L.As., Municipal Chairman, Associations, Government officials and other prominent persons in the district.

The report is based on a quick survey and the estimate given in the report are at best approximations. The estimates of demand are mainly based on the opinion given by prominent dealers. However, they may be taken as fairly satisfactory for the purpose of suggesting new industrial possibilities.

CHAPTER II.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS.

An analysis of resources, demand and the general industrial climate in North Arcot district has revealed that there is scope for the starting of a few industries.

North Arcot is one of the industrially under-developed districts in Madras State. Due to the predominance of agricultural economy and inadequate development of industries particularly in the rural sector, unemployment and underemployment are widely prevalent. Nevertheless, the district has certain advantages such as (1) fairly good agricultural and forest resources, (2) adequate power supply, (3) plentiful supply of labour, (4) eagerness of some members in the business community in the district to start new industries, etc., which have helped in creating a favourable atmosphere for the development of industries in the district.

In spite of the general willingness of some business people in North Arcot district to come forward to start new industries, they are hesitating to do so as they are not quite sure of the prospective lines of manufacture. Therefore, they require proper guidance in

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this regard. Besides, a detailed study of the available natural resources in the district having industrial importance, may also be made. In this connection, the following suggestions may be considered :—

(1) The State Industries Department and the Small Industries Service Institute, Madras, would do well to educate the people regarding the assistance rendered by the Government to new entrepreneurs. If necessary, the State Industries Department should persuade new entrepreneurs to start new industries. (Paragraphs 95 and 96.)

(2) The State Industries Department should explore the possibility of starting an industrial training institute in the district in order to impart training to students in the following trades :—

- (a) Electrician.
- (b) Draughtsman (mechanical)
- (c) Fitter.
- (d) Moulder.
- (e) Turner.
- (f) Welder.
- (g) Pattern maker.

The implementation of this suggestion will help to solve the problem of availability of technical personnel at the workshop level. (Paragraph 92).

(3) In view of the industrial importance of barite a mineral product found in the district, the Geological Survey of India may conduct a detailed survey in order to assess the quantity available and the practicability of utilizing the same for industrial purposes. (Paragraphs 54 and 55.)

(4) The State Forest Department, may, undertake a survey in order to assess the quality and quantity of a variety of hill grass known as ' Manjambul ' and its possible utilization in the manufacture of paper. (Paragraph 36.)

EXISTING INDUSTRIES.

While implementation of the above suggestions is necessary to pave the way for new industries, the existing industries in the district which have scope for expansion and development and have problems of their own, also, deserve the attention of the State Government.

The important industries are leather tanning, light engineering, steel trunk manufacture, glue and match industry.

1. *Light engineering.*—The industry is rated ' A ' in view of the good demand for its products and the scope for further development. The demand at present is particularly good for sugar cane crushers. There is good scope for expansion of production of metric weights by the existing units. (Paragraphs 136 to 139.)

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The industry requires annually about 180 tons of pig iron, 220 tons of coke and 17 tons of mild steel. The State Department of Industries should ensure steady supply of these raw materials to the industry when their supply position improves. (Paragraphs 132 and 133.)

Six units in the industry are in need of financial assistance to the tune of Rs. 82,500 for working capital. The State Bank of India may study the possibility of extending credit facility to these units for working capital under its scheme of liberalized assistance to small-scale industries. (Paragraph 135.)

Three units require machinery under the Hire Purchase Scheme. The National Small Industries Corporation should consider the applications of these units for the supply of machinery favourably. (Paragraph 135.)

2. *Steel trunks*.—The industry is rated 'B', having moderately good prospects, in view of the current short supply of B.P. sheets. Nearly 50 per cent of the local production of steel trunks is sold in the district, the rest being exported to the neighbouring districts in Madras State and Andhra Pradesh. (Paragraph 146.)

The units are compelled to buy scrap on account of the difficult position in the supply of B.P. sheets of 18 g. to 26 g. The total requirement of B.P. sheets of the industry is estimated as 240 tons per year. Every effort, however, is being made by the Government to meet the increasing demand for the production the part of the manufacturers. (Paragraph 145.)

3. *Glue*.—The industry is rated 'A' having excellent prospects for development. The demand for glue is expected to increase at the rate of 10 per cent per annum subject to the condition that its quality is improved. (Paragraphs 157 and 158.)

The units employ at present crude method of production, with the result, the quality of glue produced in the district is poor. There is scope for improving the methods of production. It is suggested that the Chemical Section of the Small Industries Service Institute, Madras, should assist the units in adopting improved process of manufacture, so that, the quality of glue can be improved. (Paragraphs 153 and 154.)

4. *Sanitaryware*.—The industry has no scope for further development in the district, as the raw materials required for the industry, have to be procured from distant places. However, the existing unit can be encouraged to produce to its capacity in view of the current demand. (Paragraphs 166 and 167.)

The State Industries Department may consider the possibility of granting a second loan to the unit against the security of building and other assets. (Paragraph 164.)

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The National Small Industries Corporation may consider favourably the application for supply of machinery to the unit under the Hire Purchase Scheme as and when received. (Paragraph 165.)

5. *Leather tanning*.—Leather tanning is the most important industry in the district. The industry is rated 'B' having moderately good prospects in view of its limited scope for expansion, the existence of idle capacity and the shortage of raw hides and skins in the country. (Paragraph 176.)

Some of the important recommendations made in the industry outlook report on Leather Tanning Industry in the Southern Region may be seen at paragraph 175.

6. *Match industry*.—The match industry and splints and veneers manufacturing industry are rated 'B', having only moderately good prospects for development. In the match industry the small-scale units find it difficult to market their products in a highly competitive market. The splints and veneers manufacturing industry is faced with the problem of inadequate supply of the basic raw material, namely, soft wood. (Paragraphs 186 to 188.)

7. *Footwear*.—The buttons and eyelets of indigenous make used in the manufacture of footwear are reported to be of very inferior quality. The button manufacturers in the country may be persuaded to improve the quality of their buttons. (Paragraph 193.)

In view of the good demand prospects, the advantages of economy in production due to proximity to the source of raw material and the willingness of the manufacturers to adopt modern methods of production, the industry deserves to be rated 'A'. (Paragraph 196.)

8. *Wooden furniture*.—The industry is rated only 'B' having moderately good prospects since it depends much on Governmental and institutional demand for existence and since the demand for furniture is more or less inelastic. (Paragraph 203.)

9. *Soap industry*.—The industry is rated as 'B' having moderately good prospects. No doubt the demand for soap is likely to increase steadily in future, but the large idle capacity, the keen competition among the units and the poor quality of soap produced are factors limiting the scope for further expansion in the industry. (Paragraph 208.)

10. *Druggets and carpets*.—With the starting of the wool processing centre at Vinnamangalam by the State Industries Department, it is hoped that the regular supply of wool to the industry will be ensured. (Paragraph 213.)

The competition among the units and the difficulty of irregular supply of wool are the main problems of the industry. The units are not able to utilize their existing capacity. The industry is rated 'B' having moderately good prospects. (Paragraph 214.)

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NEW INDUSTRIES.

The new industries proposed in the district for development are based on resources, demand in the area and industrial waste.

(1) *Sandalwood oil*.—There is good scope for a sandalwood oil plant at Tirupathur. About 780 tons of sandalwood valued at Rs. 51 lakhs were sold in 1959-60. The State Government may either revive the defunct unit at Tirupathur or in the alternative start the plant itself and later on hand it over to a private entrepreneur. (Paragraphs 219 to 221.)

(2) *Flourescent chokes*.—The total district demand for chokes is reported to be 24,000 pieces per annum. The demand for chokes is anticipated to increase three to four times by the end of the Third Plan period. The district demand is quite adequate to sustain an economic unit. (Paragraphs 222 to 226.)

(3) *Animal shoe nails*.—The district demand for animal shoe nails is estimated at 22 tons valued at Rs. 55,000. The demand is expected to increase at the rate of 10 per cent per annum. At present production of animal shoe nails is mostly carried on, on a cottage basis in Madras State. A unit with a capacity of 25 tons a year may be started either at Tiruvannamalai or at Kalasapakkam, 10 miles from Tiruvannamalai. (Paragraphs 227 to 231.)

(4) *Radio components*.—The scope for the manufacture of radio components such as speakers and transformers is considered excellent. Their annual demand in the district may be valued at Rs. 60,000. Components manufacture in Madras State, Andhra Pradesh and Kerala is practically non-existent. There is a unit at Vellore producing at present theatre type speakers. This unit may be encouraged by the State Government to manufacture the above components of radio sets. (Paragraphs 232 to 235.)

(5) *Bicycle parts and accessories*.—The district demand for bicycle parts is reported to be about Rs. 4 lakhs. Besides, another Rs. 3 lakhs worth of parts and accessories will be required for the bicycle assembly unit set up at Vellore. Production of bicycle components in the district is at present negligible. In view of the current import restriction on bicycle parts, there is ample scope for one or two units to be set up as ancillary to the bicycle assembly unit at Vellore. At the same time, the existing three units in the district may be assisted in expanding their capacity, so that, they can be enabled to meet the needs of the bicycle assembly unit for bicycle accessories such as stands and carriers. (Paragraphs 236 to 239.)

(6) *Link clips*.—There is bound to be a great demand for link clips with the pace of electrification quickening. The annual district demand is valued at Rs. 50,000. The investment (Rs. 17,000) required for starting the industry is well within the means of a small entrepreneur. There is at present only one unit in the industry. Another unit has been recommended for the Coimbatore district. There is ample scope for a unit to be started in the district with a capacity of 2,000 gross boxes per year. (Paragraphs 240 to 243.)

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(7) *Wire nails*.—There is excellent demand for wire nails. The district demand for wire nails is estimated at 230 tons per annum. A unit at Gudiyatham is being set up for this purpose with a capacity of 200 tons of wire nails per annum. It is strongly recommended that the unit's application for a casual quota (5 tons a month) of steel wire may be favourably considered. (Paragraphs 244 to 246.)

(8) *Printing roller composition*.—The industry is eminently suited for location in the district on account of the availability of some of the essential ingredients, namely, glue and sugar. The current demand for printing roller composition may be placed at Rs. 50,000 per annum. A fair margin of profit can be reasonably expected of a unit to be set up near the source of raw materials. The industry may be located at Ranipet, where the glue industry is concentrated. (Paragraphs 247 to 250.)

(9) *Paper*.—Paper is the great demand in the district, the annual district consumption being 1,150 tons valued at Rs. 21 lakhs. Paper at present is being imported from West Bengal, Mysore and Kerala States.

A unit with a daily capacity of 5 tons may be started at Ambur, if paper is to be made out of bagasse or at Tirupathur if it is to be made out of the hill grass which grows luxuriantly in the district. (Paragraphs 251 to 254.)

(10) *Crown corks*.—Crown cork is suggested for manufacture in view of the good demand in the State. There is scope for 5 or 6 fresh units for the manufacture of crown corks in the State. The district demand for crown cork has been increasing at 10 per cent per annum. In the event of the replacement of Codd's bottles on the ground of safety, the future demand is expected to increase at 15 per cent per annum. The raw materials required are tin sheets and cork discs. Cork discs are available in the country. The unit proposed should arrange with the Director of Industries and Commerce, Madras, for the supply of sufficient tin sheets before starting production.

It is recommended that the National Small Industries Corporation should reconsider their original decision and supply machinery for the manufacture of crown corks in view of the excellent prospect of the industry. (Paragraphs 253 to 259.)

(11) *Industrial alcohol*.—There is excellent scope for the starting of an alcohol distilling unit from the molasses. It is estimated that about 80 tons of molasses will be available daily from the sugar factory near Ambur when it goes into production. The quantity of alcohol that can be daily extracted will work out to 4,573 gallon. There is at present only one unit distilling alcohol in the State.

A unit with a capacity of 1,000 gallon a day can easily be started in the vicinity of the sugar factory. (Paragraphs 260 to 262.)

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(12) *Leather board.*—The raw materials for the industry are the shaving and trimmings from the tanning industry, North Arcot district is an important area for tanning. The total quantity of shavings and trimmings available from the tanneries will be about 210 tons a year.

At present only one unit has been given a licence to produce leather board in Madras State. There is good scope for a unit to be set up in the district with an initial capacity of 2 tons a week. (Paragraphs 263 to 266.)

CHAPTER III.

RESOURCE ANALYSIS.

1. *Physical and geographical features.*—The district lies between 12° and $13^{\circ} 15'$ of the northern latitude and $78^{\circ} 25'$ and $79^{\circ} 50'$ of the eastern longitude.* The district is bounded on the north by Chittoor district, on the east by the Chingleput district, on the south by the South Arcot district and on the west by Salem district.

2. The total area of the district before 1st April 1960 was 4,654 square miles. After 1st April 1960, as a result of the Pataskar Award, 21 and 8 villages from Chittoor taluk in Andhra Pradesh were added to Walajapet and Gudiyatham taluks respectively and 5 villages from Truttani taluk of Andhra Pradesh to Arkonam taluk. Consequent on the transfer of these villages, the area of the North Arcot district increased by 60.56 square miles.

3. Further the forest areas lying to the north and south of the village Mahimandalam, those to the east and south of the 8 villages attached to Gudiyatham taluk and those surrounding the Javadi-Remasamudram tanks and Kollapalli tank in Andhra Pradesh have also been merged to the district.

4. *Rivers.*—The important rivers, which flow through the district are Palar and its tributaries, Cheyyar and South Pennar. A reservoir near Sathanur across South Pennar is being constructed with an initial capacity of 4,600 M.C. feet which is capable of being increased to 8,000 M.C. feet ultimately. The scheme is expected to bring 15,300 acres under cultivation.

5. *Climate.*—Arkonam, Cheyyar, Polur and Wandiwash taluks have a moderate climate all the year round, while Vellore, Arni, Walajapet and Gudiyatham taluks which have patches of rocky hillocks are hot in summer and cold in winter. The climate of the remaining taluks of Tiruvannamalai, Chengam and Tirupathur is cold in winter and moderate in other seasons. The average maximum temperature is 92.5° and the minimum is 72.8° . The average annual rainfall in the district is 38.01". The rainfall in

* Position relates to the period before the implementation of the Pataskar Award on 1st April 1960.

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the district is dependent both on the South-West and North-East monsoons. Both of them become deficient in moisture when they reach the district and hence the poor rainfall.

6. The district is divided for purposes of administration and revenue collection into 11 taluks, viz., (1) Vellore, (2) Gudiyatham, (3) Walajapet, (4) Arkonam, (5) Tirupathur, (6) Polur, (7) Arni, (8) Cheyyar, (9) Wandiwash, (10) Chengam and (11) Tiruvannamalai. The biggest among the taluks is Chengam with an area of 652 square miles and the smallest is Arni with an area of 176 square miles.

7. *Human resources.*—The population of the district according to the 1951 census was 2,859,157. Area, transferred from Andhra Pradesh to the district, has a population of 40,362.

8. Over the five decades since 1901, the population of the district had grown from 16.96 lakhs to 28.59 lakhs, i.e., by nearly 68.5 per cent as shown below :—

TABLE I.

Growth of population.

<i>Decade.</i>		<i>Population.</i>	<i>Percentage increase or decrease.</i>
(1)		(2)	(3)
1891-1901	.. ..	1,696,015	..
1901-1911	.. ..	1,903,439	+ 12.2
1911-1921	.. ..	2,002,087	+ 5.1
1921-1931	.. ..	2,266,939	+ 13.2
1931-1941	.. ..	2,577,540	+ 13.7
1941-1951	.. ..	2,859,157	+ 10.9

Source : Census Handbook, North Arcot District, 1951.

9. As can be seen from the above table, population during the decade 1941-51 has shown only an increase of 10.9 per cent as against an increase of 13.7 per cent during the previous decade. This is because this district was one among the badly affected districts by the failure of the north-east monsoon successively from 1947-48 onwards. As a consequence, large number of people migrated from the district to Madras City, Bangalore, Shimoga, Kolar and other places especially from Chengam and Tiruvannamalai taluks.

10. *Present population and working force.*—In the light of the trends in population growth over the decade 1941-51, the population of the district in 1960 may be estimated at 31.83 lakhs, of which nearly 60 per cent constitute the working force (persons in the age group of 15-64).

11. *Occupational pattern.*—Agriculture provides the main source of livelihood for 69.5 per cent of the total 1951 population. Next in importance is 'Production other than cultivation' which

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accounts for 11.2 per cent of the population. 'Commerce, Transport and other miscellaneous sources' provide employment to the rest of the population. The following table shows the pattern of occupational distribution as revealed in the census of 1951 :—

TABLE II.

Pattern of occupational distribution in North Arcot district (1951).

<i>Serial number and livelihood classes.</i>	<i>Number of persons.</i>	<i>Percentage to the total.</i>
(1)	(2)	(3)
	(IN LAKHS.)	
1 Cultivators of land wholly or mainly owned and their dependants.	11.97	41.9
2 Cultivators of land wholly or mainly unowned and their dependants.	2.42	8.5
3 Cultivating labourers and their dependants ..	4.88	17.0
4 Non-cultivating owners of land and agricultural rent receivers and their dependants.	0.61	2.1
5 Transport	0.42	1.5
6 Other services and miscellaneous sources	3.25	11.4
7 Commerce	1.82	6.4
8 Production other than cultivation	3.22	11.2
Total ..	28.59	100.0

Source : Census Handbook, North Arcot District, 1951.

12. *Unemployment.*—The labouring class in the villages is in a state of dependence on the ryots and the standard of living in the rural areas is low. There is little by way of subsidiary occupation, with the result, that the unemployment as well as under-employment is on the increase in the rural areas of the district.

13. In the absence of a detailed survey, the extent of unemployment and its magnitude in the district is not known. The data obtained from the Directorate of Employment, Madras and the District Employment Officer, Vellore, indicated that on 31st March 1960, 11,268 persons were on the live register of the District Employment Officer, Vellore, of whom 10,518 were men and the rest women. Among the above registrants 2,122 are matriculates, 54 intermediates and 75 graduates. The number of persons in different categories classified according to the occupation sought by them, is given below :—

	<i>Men.</i>	<i>Women.</i>
1 Industrial supervisory	21	Nil.
2 Skilled and semi-skilled	251	10
3 Unskilled	7,091	199
4 Clerical	1,828	116
5 Educational	705	242
6 Domestic workers	259	152
7 Others	363	31
Total ..	10,518	750

Source :

(1) Office of the Director of Employment, Madras.

(2) Office of the District Employment Officer, Vellore.

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14. The skilled, semi-skilled and supervisory workers constitute only 25 per cent of the registrants in the live register, whereas the unskilled workers represent 64.7 per cent.

15. The classification of the skilled and semi-skilled registrants is given below :—

I. Mechanical Engineering—

					Number of persons.
1	Blacksmith	...	...	...	7
2	Turner	...	...	...	13
3	Moulder	...	...	...	5
4	Tool grinder	...	...	...	1
5	Fitter	...	...	...	26
6	Bench fitter	...	...	...	6
7	Mechanic	...	...	...	30
8	Welder	...	...	...	11
	Total	..			99

II. Electrical Engineering—

					Number of persons.
1	Line-man	...	...	...	7
2	Wireman	...	...	...	28
3	Electrician	...	...	...	2
4	Armature winder	...	...	...	1
5	Electroplater	...	...	...	4
	Total	..			42

III. Textile—

					Number of persons.
1	Sider cotton	...	...	...	1
2	Weaver	...	...	...	31
3	Dyer	...	...	...	2
	Total	..			34

IV. Printing—

					Number of persons.
1	Compositor	...	...	...	2
2	Book binder	...	...	...	4
3	Machineman	...	...	...	1
	Total	..			7

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V. *Post and telegraph—*

					Number of persons.
1	Telegraphist	...	...	...	1
2	Telephone operator	...	...	...	3
					—
	Total	..			4
					—

VI. *Miscellaneous—*

					Number of persons.
1	Crane Driver, oil engine driver and tractor driver	...	...	...	5
2	Cleaner	...	...	...	8
3	Coir spinner	...	...	...	6
4	Tinsmith	...	...	...	1
5	Tracer	...	...	...	3
6	Maistry	...	...	...	13
7	Carpenter	...	...	...	15
8	Painter	...	...	...	8
9	Caner	...	...	...	3
10	Potter	...	...	...	2
11	Laboratory assistant	...	...	...	2
12	Dyer	...	...	...	2
13	Boot maker	...	...	...	3
14	Watch repairer	...	...	...	1
15	Boilerman	...	...	...	1
16	Driller	...	...	...	1
17	Cinema operator	...	...	...	2
					—
	Total	..			75
					—

Source : Office of the District Employment Officer, Vellore.

16. Of the skilled and the semi-skilled registrants, those coming under mechanical and electrical engineering groups constitute nearly 58 per cent.

17. As observed earlier, there is a wide disparity between the number of skilled and unskilled workers amongst the registrants. This is indicative of the problems of the non-availability of technical personnel.

18. Even though there is dearth of skilled workers in the mechanised lines, there are a large number of traditionally skilled workers scattered in different parts of the district, in different trades such as pottery in Karigeri, brass-smithy in Vellore, Tiruvannamalai, Arni, etc., weaving in Arni and Gudiyatham, mat weaving near Wandiwash and blacksmithy in Vellore, Tiruvannamalai and Polur.

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MATERIAL RESOURCES.

(i) *Agricultural.*(a) *Crop pattern.*

19. The total geographical area of the district before 1st April 1960 was 2,978,241 acres. The cropped area of the district (including the area sown more than once) forms 48.8 per cent of the total area. About 68.5 per cent of the cropped area is under food crops, 30.8 per cent under oil seeds and the rest under miscellaneous crops. Table III shows the area and production of important food crops in the district for the years 1956-57, 1957-58 and 1958-59.

TABLE III.

Food crops (area and production) in North Arcot district for the year 1956-57, 1957-58 and 1958-59.

Serial number and crops.	1956-57.		1957-58.		1958-59.	
	Area.	Production.	Area.	Production.	Area.	Production.
	ACRES.	TONS.	ACRES.	TONS.	ACRES.	TONS.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 Rice	646,243	600,000	530,718	500,000	505,113	475,000
2 Cholaam	95,621	20,000	97,374	20,000	109,739	25,000
3 Cumbu	56,445	11,500	52,797	11,000	49,466	10,000
4 Maize	845	100	871	100	850	100
5 Ragi	89,160	50,000	87,798	48,000	97,326	55,000
6 Kora	1,589	..	1,063	..	1,465	..
7 Varagu	28,761	4,500	28,508	4,500	36,985	6,000
8 Samai	42,068	7,000	37,419	6,000	38,544	6,250
9 Greengram	4,028	800	3,627	700	3,129	600
10 Bengalgram	46	1	47	1	27	$\frac{1}{2}$
11 Blackgram	3,635	700	4,684	900	3,944	800
12 Horsegram	46,879	8,000	42,469	7,500	35,053	6,000
13 Others	3,932	..	3,006	..	3,663	..

Source : Office of the State Marketing Officer, Madras.

(b) *Utilization of crops.*

20. Rice is the only food crop in the district which shows a surplus. The surplus is estimated at 25,000 tons of which a major portion is exported to Kerala State. Other food crops are in short supply and hence they are being imported from areas outside the district.

21. Groundnut is the most important crop among the commercial crops in the district. Out of the total area of 4.67 lakh acres under oil seeds in 1958-59, the area under groundnut alone is 4.50 lakh acres. The Table IV shows the area and production of important commercial crops grown in the district in 1956-57, 1957-58 and 1958-59.

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TABLE IV.

Commercial crops (area and production) in North Arcot district in 1956-57, 1957-58 and 1958-59.

Serial number and crops.	1956-57.		1957-58.		1958-59.	
	Area.	Production.	Area.	Production.	Area.	Production.
	(1)	(2)	(3)	(4)	(5)	(6)
	ACRES.	TONS.	ACRES.	TONS.	ACRES.	TONS.
1 Groundnut	437,704	215,000	423,671	210,000	450,807	215,000
2 Gingelly	7,668	1,750	8,578	2,000	13,490	3,000
3 Castor	3,386	400	3,388	400	3,351	400
4 Cotton	248	250 *	432	375 *	528	500 *
5 Mesta	156	280 *	..	..	..	..
6 Tobacco	509	..	523	..	586	..
7 Sugarcane	27,566	693,570	..	..	..	..

Source : Office of the State Marketing Officer, Madras and season and crop reports.

22. Major portion of the groundnut available is consumed by the oil mills and village ghanies in the district. It is estimated that nearly 75 per cent of the oil produced in the district is consumed locally and the rest exported to other places. Leather tanning industry in the district is the major consumer of groundnut oil.

23. The groundnut cake is used as fodder for cattle and also for manure mixing by a large-scale unit in the district. Further a large-scale solvent extraction plant in Madras City gets part of its supplies of oil cakes from the North Arcot district for oil extraction. The production of oil cakes in this district is not sufficient to meet the requirements of this units. Hence there is no possibility of suggesting another solvent extraction plant based on groundnut oil cakes in the district.

24. The gingelly and castor oilseeds available in the district are also crushed and consumed locally.

25. Tobacco is converted into chewing tobacco and is also used for making cigars by the local units.

26. The sugarcane available in the district is crushed by local sugarcane crushers and converted into jaggery. The total production of jaggery is estimated to be 70,000 tons. The jaggery produced in the district is known for its quality and finds ready market in other places. Nearly 15,000 tons of jaggery valued at Rs. 17,00,000 have been exported mostly to North India during 1958-59. Production of sugarcane in the district is expected to increase as a result of measures like increased application of fertilisers and green manures, adoption of better methods of cultivation, extension of cultivation under sugarcane, etc. As a result of the above measures, an additional one lakh tons of sugarcane is expected to be produced by 1960-61.

* In bales.

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27. In addition to jaggery, sugar is also expected to be produced in the Co-operative Sugar Factory being set up at Pachai-kuppam near Ambur. The initial crushing capacity of the unit is 800 tons of sugarcane a day. With a total outlay of Rs. 1.20 crores, the unit is expected to start production shortly and to provide employment to 200 workers.

28. The possibility for starting of a small paper unit with at least 5 ton capacity using the sugarcane bagasse as raw material may be explored. There is scope for a unit for the manufacture of alcohol from molasses which will be available as waste from the proposed sugar mill near Ambur.

29. Both the units may be favourably located near the sugar mills.

(ii) *Forest resources.*

30. The district has a forest area of 775,102 acres*, i.e., about a quarter of the total geographical area of the district. "The forest in Gudiyatham taluk is of a fuel and scrub type. The reserved forests in the other taluks consist of hill forests, plain forests, scrub growth and palar plantations". The hill forests contain sandalwoods and bamboos. The forests of the district are of great value and a good source of revenue to the Government as will be seen from the following table :—

TABLE V.

Revenue realised from the sale by auction of major forest produce during 1958-59.

<i>Serial number and name of the produce.</i>	<i>Yield.</i>	<i>Value.</i>
(1)	(2)	(3)
	QTY.	RS.
1 Sandalwood	518 tons †	22,03,978
2 Bamboo	7,325,777 Nos.	1,17,324
3 Firewood	17,644 tons.	3,34,159

31. The sandalwood trees are felled, sized and classified by the Government and sold in auction at the Government depot at Tirupathur every year. Almost the entire quantity of sandalwood is purchased by merchants from Bombay and Kozhikode. There was a unit for the extraction of sandalwood oil in Tirupathur which is reported to have been closed due to some dispute among the partners. There is the possibility of starting a new unit or reviving the defunct one in Tirupathur for the extraction of sandalwood oil which will have good demand in the country.

32. Bamboo coupes are worked through the agency of contractors. Bamboos are mostly used locally for the making of baskets, winnows, sieves, screens, thatties, etc., and as rafters for thatched sheds.

* The figures include the area attached to the district from Andhra Pradesh since 1st April 1960.

† Estimated production during 1959-60 is 780 tons of sandalwood, valued at Rs. 51,14,000.

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33. A small quantity is exported to the neighbouring districts of South Arcot, Tiruchirappalli, Tanjore, Madras, etc. It may not be a practicable proposition to start a paper industry based on bamboos in view of the proposed project for paper manufacture from bamboo in the Salem district.

34. Certain varieties of soft wood such as 'Thanukku', 'Peethanukku', 'Mulelavu', etc., available in the forest are utilized by the two units making splints and veneers, one at Gudiyatham and the other at Tirupathur and also by one unit making photo frames at Sholingur in Arkonam taluk. These varieties of wood available at present in the district are not adequate to meet the requirements of the existing units and as such they mainly depend on the wood imported from Kerala and Andhra Pradesh. The Forest department is developing soft wood species in about 400 acres in the district.

35. Some important minor forest produce of the district are gallnuts, 'oungam' tamarind, myrobalan, 'avaram' and konnai barks, etc. The total revenue realised through the sales of these produce was Rs. 78,609 during 1958-59. The whole output of 'avaram' and 'konnai barks', gallnut and pungam seeds is consumed by the local tanneries.

36. It is reported that a certain variety of hill grass known as 'Manjambul' is available in plenty in the forest area of the district and it is utilized at present for thatching purposes. It is reported that this grass can be used for the manufacture of paper. Since the quantity of such grass available in the district is not known, it is not possible to ascertain whether it will be adequate to sustain a paper factory. It is suggested that the forest department of the Government of Madras may undertake a survey to ascertain the quality and quantity of 'Manjambul' available in the district and its possible utilization in the manufacture of paper.

(iii) *Livestock resource.*

37. The bovine population of the district according to the quinquennial livestock census of 1956 was 1,208,073. Besides there were 718,968 sheep, 260,816 goats, 72,467 pigs, 5,563 donkeys, 884 horses and ponies and 29 mules. The total poultry in the district is 766,984.

38. Of the various livestock products available hides, skins and wool are utilised for industrial purposes while the rest are consumed mostly locally.

39. North Arcot district is an important area for leather tanning in the State. There are about 131 units engaged in leather tanning. The total value of hides and skins tanned in the district during 1959-60 is estimated at Rs. 17.62 crores. Nearly 90 per cent of the hides and skins produced in the district are exported to other places and countries.

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40. The raw hides and skins available in the district are not adequate to meet the requirement of the tanning industry and hence they are obtained from other districts in the State as well as from other States, viz., Rajasthan, Madhya Pradesh, West Bengal, Bihar, etc.

41. The fleshings available from the tanneries are collected and converted into glue in 11 units in the district. The important centre for the manufacture of glue is Ranipet. The eleven units produce 82 tons of glue valued at Rs. 1.15 lakhs in 1958-59. The glue produced in the district is sold in Madras City.

42. There is the possibility of utilising other tannery wastes such as stakings, buffings, etc., for the manufacture of leather board. Nearly 210 tons of leather waste is estimated to be available in the district. A small unit with an initial production capacity of 2 tons a day may be advantageously established in Vaniambadi.

43. The wool available in the district is utilised for the manufacture of druggets and carpets. There are three organised small-scale units manufacturing druggets and carpets in Walajapet. Besides, nearly 400 families in places like Walajapet, Madavalam, Nattarampalli, Athuvambadi, etc., are engaged in the manufacture of blankets and carpets. The total production of druggets, blankets and carpets in 1958-59 in the district is estimated at Rs. 5.76 lakhs. The products manufactured in the district are mostly exported to other places in the country and foreign countries.

44. The Government of Madras has recently set up a wool processing centre at Vinnamangalam at a cost of Rs. 13.10 lakhs. The units manufacturing druggets and carpets will be assured of steady supply of processed wool when the unit begins to function. This will help in improving the quality of the products of the units.

45. The bones available in the district are crushed into bone-meal in two units, one at Katpadi and the other at Pernampet. The crushing capacity of the two units is nearly 35 tons per day. The units are able to get only 12½ per cent of the raw bones required for them from the local collection and the rest of their requirement is met from the imports of bones from places like Agra, Raipur, Jullunder, etc.

46. From the foregoing analysis it may be seen that the live-stock products available in the district are properly utilised and there is not much scope for starting any new industry based on them except for leather boards manufacturing industry as already mentioned.

(iv) Fishery resources.

47. The district has no sea coast. It has only inland waters consisting of tanks, wells and rivers. The area of inland waters is 20,100 acres. Nearly 2,010 tons of fish have been estimated to have been landed during 1956-57, of which nearly 60 per cent consists of a species of fish called carps, 10 per cent cat fish and

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the rest murrals and other varieties. The quantity of fish available in the district is not adequate for the local consumption and the district imports fish from Salem district and Kerala State to meet the deficit. The Department of Fisheries, Madras, are introducing and rearing new species of fish like tilapia, rohu, mrigal, catla, gourami in the tanks under its control. However, the fisheries do not hold any scope for industrial development.

(v) *Mineral resources.*

48. Kankar, white clay, barite, granite, reh salts, etc., are the different types of minerals reported to be available in the district.

Kankar.

49. The largest occurrence of kankar are reported to be near the present Arkonam Aerodrome at S. 16° W of Puliymangalam and N 59° W of Seyyar village. Formerly this kankar bearing area was said to have been even larger, but much of it has since been worked out. It is also reported to occur in some places in Chengam taluk which is rich in lime. However, the quantity available is too small to be able to sustain a cement factory. Kankar is now being worked out for purposes of lime burning only.

White clay.

50. White clay, both Karolines and sedimentary clays, can be used for making porcelainware, dolls, etc. White clay occurs at a depth of 8 feet at Pappanthangal, 8 miles north of Tiruvattur on the Wandiwash-Arcot Road. A bed of white clay 9 feet thick is also reported to occur 20 feet below the surface at Pallur in Arkonam taluk. The quantity available in these places has not so far been estimated. The white clay obtained in the neighbourhood is however used for the manufacture of glazed pottery at Karigeri, 4 miles from Katpadi.

Granite.

51. The charno chites and leptymites in fresh condition serve as excellent building stones and road metal. They are being quarried at a number of places for local use for wells, mile stones, pillars, etc.

52. The relatively fresh grey coloured biotite-granite genesis are also extremely popular as building stones and are being quarried in the neighbourhood of the large Mahendravadi hill and at other places in the district.

Reh salts.

53. Reh salts occur at a number of places in the district without any economic importance.

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Barite.

54. About a mile to the south and south-west of Alangayam there are two hills one on either side of the road connecting this place with Mittur. These two hills and the intervening ground are said to be largely occupied by pyroxene genesis traversed by abundant veins of barite associated with quality. The deposit has not been examined in detail to assess the reserves. Barite is chiefly used as filler in paints, and in Industries such as soap, printing ink, textiles, paper, optical glass, etc., where its insertness and density are useful.

55. It is suggested that the Geological Survey of India may conduct a detailed survey of this area and assess the quantity available and the possibility of utilising it for industrial purposes.

CHAPTER IV.**INDUSTRIAL CLIMATE AND ECONOMIC FACILITIES.****GENERAL INDUSTRIAL CLIMATE.**

56. The district is one of the industrially under-developed areas in the State. There is not much of large-scale industrial development except for the existence of two spinning mills and a factory producing acids, chemicals, fertilisers, sanitary-ware, etc.

57. Except for industries such as leather tanning, light engineering, match, art silk weaving, etc., other industries in the small-scale sector have not taken deep roots in the area.

58. Mat-weaving, beedi-making, lungi and pure silk weaving, druggets and carpets making, manufacture of jaggery and domestic utensils are some of the important cottage and village industries in the district.

59. In recent years, the Government of Madras has been taking keen interest in the industrial development of the district. As a result, the following new industrial units or training centres have been/are being established in the district:—

- (1) A Co-operative Sugar Mill at Pachaikuppam, Ambur (about to commence production shortly).
- (2) General purpose engineering workshop, Vellore.
- (3) Bicycle assembly unit, Vellore.
- (4) Leather finishing centre, Vinnamangalam.
- (5) Wool processing centre, Vinnamangalam.
- (6) Training centre for making holdals and ready-made garments, Vellore, and
- (7) Unit for the manufacture of Amber Charka parts in S.V. Nagaram, near Arni.

60. Besides, an industrial colony at Katpadi is also being set up.

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61. Under the cottage and village industries development scheme, a unit for the manufacture of Wardha Ghanis at Venгалapuram, a model soap making unit at Kadaladi, a model production centre at Choolaimedu, a hand-made paper units at Arapakkam, etc., are set up by the Department of Industries and Commerce in the district. With a view to popularising and marketing the village industries products three gramudyog (2 'A' and 1 'C' class) sales depots have been sanctioned to be set up in the district. One 'A' class depot is already functioning at Vellore which sells products such as hand-pounded rice, oil, honey, palmgur, pottery articles, etc. The other 'A' class depot at Tiruvannamalai and a 'C' class depot at Tirupathur will function shortly.

62. The Department of Industries is also organising industrial co-operatives in different trades, viz., timber works, metal works, glazed pottery, coir making, mat-weaving, bricks and tiles making, bee-keeping, jaggery making, etc.

63. As on 31st March 1960 there are 24 small-scale industrial co-operatives and 127 village industrial co-operatives functioning in the district. Amongst the latter, jaggery manufacturing co-operatives take the pride of place with about 100 co-operatives out of a total of 127.

64. The State Government takes active interest in looking after the financial needs of the small-scale industries. Loans are given by the State Government under the State Aid to Industries Act. The State Bank provides the needy and eligible units with short-term loans while the National Small Industries Corporation supplies machines under the Hire Purchase Scheme. In order to meet the requirements of factory accommodation for small-scale units, the State Government is constructing 12 factory sheds in the Industrial Colony at Katpadi 10 'B' Type and 2 'C' Type. A sum of Rs. 6.91 lakhs has been set apart for this purpose. This is likely to provide the necessary incentives to entrepreneurs who are now relieved of the botheration of finding suitable factory accommodation for their units.

65. Cottage and village industries are also developed by the supply of improved tools and equipment, grant of long-term loans at low rate of interest and supply of raw materials at cost price.

66. Vellore, Arcot, Tiruvannamalai, Arkonam, Tirupathur are the important marketing centres which provide necessary marketing facilities. Vellore is the important market for industrial and agricultural commodities. It caters to the demand of the people in the taluk as well as those of the neighbouring taluks. Electrical goods, automobile parts, hardware items, furniture, steel trunks, footwear, domestic utensils, bicycles and spares, etc., are the important industrial goods sold in the market.

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TRANSPORT FACILITIES.

67. The district has a net work of roads totalling 1,987.5 miles linking important centres in different taluks of the district, as well as different district headquarters in the State. Certain important centres in the neighbouring States of Mysore, Kerala and Andhra Pradesh are also connected by this road system. The most important of the roads connecting other States which traverse the district are Madras-Kozhikode, the Madras-Bangalore and the Cuddalore-Chittoor roads. The present mileage of the different types of roads in the district is indicated in the following table :

TABLE VI.

Mileage of different types of roads in the district.

<i>Serial number and type of road.</i>	<i>Miles.</i>
1 National Highways	103-5
2 Provincial Highways	73-5
3 Major district roads	611-2
4 Public Works Department roads ..	4-5
5 Municipal roads	45-6
6 Village roads	580-6
7 Other district roads	567-7
Total ..	1,987-4

Sources : Office of the Divisional Engineer (Highways), Vellore, and Vellore Municipality.

68. The Government of Madras has programme to spend about Rs. 8.49 lakhs during the remaining period of Second Five-Year Plan for the construction of new roads and bridges and for the improvement of the existing ones. Further, it has proposals to spend about Rs. 103.34 lakhs during the Third Plan period as indicated below :

(1)	<i>Miles.</i> (2)	<i>Cost.</i> (3) (RUPEES IN LAKHS.)
1 Cement concrete	7-4	15-00
2 Black top	26-0	6-06
3 New metalling	96-0	14-10
4 Improvement to geometrics	17 works	4-60
5 Minor bridge	27 works	11-65
6 Major bridge	17 works	29-64
New formation	229 works	13-50

69. At the end of the Third Plan period, the district will be having roads linking important villages to the nearest main roads.

70. The district is also served adequately by rail transport. The total length of rail lines is 217 miles—130½ miles of broad-gauge and 86½ miles of meter-gauge. The broad-gauge line from Madras to the West Coast runs across the northern part of the district with lines branching off from there to Bombay and Bangalore.

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71. All the taluk headquarters except Walajapet, Arni, Chengam, Cheyyar and Wandiwash are connected by rail. Except in the case of Walajapet, all the remaining four places have Out-Agency facilities for goods and parcels.

72. All the lines bear heavy traffic and the supply position of wagon is considered to be generally satisfactory even though there may be some delays in transit of goods and raw materials.

POWER.

73. The district is served by the Mettur Hydro-Electric System and the Madras Thermal Power System. The urban areas of Vellore and Ranipet are served by the Vellore Electricity Supply Corporation, Limited, Vellore. Power is supplied in the district through 8 subdivisions with a total capacity of 99,745 K.V.A.

74. The total number of villages electrified in the district at the end of 30th June 1960 is 177. In the remaining period of 1960-61, another 186 villages are expected to be electrified. The State Government is taking steps to electrify all the villages in the district by the end of the Third Plan.

75. Power supply is made available to the existing small-scale units on top priority basis. Power supply to the new small-scale units also will be considered under top priority if supply is technically and economically feasible. The statement showing the consumption of electricity from the Vellore Electricity System in North Arcot district during the years 1957-60 is given below :—

TABLE VIII.

Consumption of Electricity in North Arcot district during 1957-58, 1958-59 and 1959-60.

Serial number and categories.	Consumption.		
	1957-58.		1958-59.
	Quantity.	Value.	Quantity.
	UNITS.	RS.	UNITS.
(1)	(2)	(3)	(4)
1 Agriculture	35,398,265	19,05,900	49,885,678
2 Industrial H.T. (Textiles, Leather tanning and Sugar).	2,426,512	1,26,500	2,247,984
3 Railways H.T.	2,672,297	1,11,000	2,832,565
4 Hospital (Ambur)	91,473	7,000	106,020
5 Satanur Project	525,979	32,500	353,220
6 Bulk supply to licensees ..	14,768,675	5,38,700	15,687,328
7 Industrial L.T.	8,396,674	5,22,200	8,422,828
8 Street lighting	936,120	1,78,200	1,112,456
9 Domestic uses	3,647,735	8,45,500	4,459,431
10 Other L.T.	392,084	8,03,000	321,648
Total ..	69,065,814	50,70,500	85,429,068

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Serial number and categories.	Consumption—cont.		
	1958-59.	1959-60.	
	Value. Rs. (5)	Quantity. UNITS. (6)	Value. Rs. (7)
1 Agriculture	26,81,700	63,966,884	38,15,900
2 Industrial H.T. (Textiles, Leather tanning and Sugar).	1,16,400	3,026,898	1,64,200
3 Railways H.T.	1,19,300	2,844,348	1,60,900
4 Hospital (Ambur)	7,400	108,562	12,600
5 Satanur Project	24,500	279,332	25,100
6 Bulk supply to licensees ..	5,71,200	18,248,095	7,72,700
7 Industrial L.T.	5,41,800	10,291,881	8,71,500
8 Street lighting	2,16,400	1,521,017	2,78,000
9 Domestic uses	10,64,100	4,356,710	11,02,100
10 Other L.T.	11,57,600	966,135	12,68,300
Total	65,00,400	105,609,862	84,71,300

Source : Office of the Superintending Engineer, Vellore Electricity System, Vellore.

76. It may be observed from the above table that the consumption of power by most of the categories has been increasing every year. The Industrial L.T. consumption increased by 23.5 per cent in 1959-60 over 1957-58, the average annual increase being 11.3 per cent.

77. The rate charged for different categories of consumption prior to 1st October 1959 and after 1st October 1959 are given below :—

Categories of consumption. (1)	Prior to 1st December 1959. (2)	After 1st October 1959. (3)
1 Agricultural services ..	0.75 to 0.90 anna per unit.	0.7 nP. per unit with a minimum of Rs. 2 per h.p. connected.
2 Industrial services ..	0.75 anna to one anna per unit.	10 nP. per unit.
3 Street lighting ..	Rs. 1-8-0 for 40 watts. Rs. 2 per 70 watts.	Rs. 2 for 40 watts. Rs. 3 for 60 watts.
4 Domestic lighting ..	Re. 0-3-0 to per unit.	0.29 nP. per unit with a minimum of Rs. 1.75.

Source : Office of the Superintending Engineer, Vellore Electricity System, Vellore.

CAPITAL AVAILABILITY.

78. The population of the district is generally poor excepting the business community. Discussion with the business people in important towns in the district revealed that they are interested in starting new industries utilising the assistance available from the National Small Industries Corporation, Small Industries Service Institute, State Government and State Bank of India.

79. Some of the existing small-scale units in the district are working mostly with owned finance. But many of them are in need

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of additional finance. The State Government and other institutions, as already mentioned elsewhere, have been giving assistance to supplement the resources of the small-scale units. Financial assistance from banking institutions is comparatively meagre. As a result, some small-scale units often go to private money-lenders and take loans at high rates of interest. The small-scale units have been availing themselves of the facilities of the Hire Purchase Scheme of the National Small Industries Corporation.

80. In 1959-60, 12 applications for the purchase of machines on hire purchase valued at about Rs. 1.40 lakhs have been received by the State Government. Of these 6 applications have been accepted and recommended to the National Small Industries Corporation for the supply of machines on hire purchase valued at Rs. 0.81 lakh. It is reported that, so far, owing to various reasons the small-scale industrialists have not been able to make the best use of financial assistance provided by the State Bank of India; but now it is learnt that the situation is changing and that more loans will be provided by the three branches of the State Bank of India at Vellore, Tirupathur and Gudiyatham. It is expected that when the State Bank takes up the scheme of liberalised assistance to small-scale units, other banks are likely to follow the lead.

81. Under the State Aid to Industries Act, a sum of Rs. 60,000 was given during 1956-57 to 10 units; Rs. 2.02 lakhs during 1957-58 to 203 units and Rs. 3.16 lakhs during 1958-59 to 312 units; Rs. 3.49 lakhs during 1959-60 to 586 units. The beneficiaries are mostly cottage and village industries and some small-scale industries like leather footwear, chemicals, silk twisting and weaving, furniture, light engineering, steel trunks, etc.

SIZE OF THE MARKET.

82. North Arcot district offers a good market for a wide range of goods. Among the markets in the district may be mentioned Vellore, Tirupathur, Vaniambadi, Jalarpet, Tiruvannamalai, Gudiyatham and Arni. The leading market is Vellore being a noted centre for agricultural commodities such as rice, groundnuts, gingelly, sugarcane, mangoes, etc., and industrial goods such as automobile parts, bicycle components and accessories, builders, hardware, radio components, paper, sanitarywares, etc. Jalarpet is noted for its market for hides and skins which come from Mysore State and from the rest of Madras State like Erode, Dindigul, etc. Thirupathur derives importance from its position as a centre for auction of sized sandalwood. Other products dealt in the markets are brass utensils, tanned hides and skins, pure silk and art silk fabrics, carpets and druggets, etc.

83. The chief exports and imports of consumer goods from and into the district based on a study of the principal market centres are given in Tables VIII and IX.

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TABLE VIII.

Chief exports of manufactured articles from the North Arcot district (1959-60).

Name of the commodity.	Approximate value. RS.
1 Tanned hides and skins	15,86,70,000
2 Druggets and carpets	2,84,000
3 Leather footwear	1,45,000
4 Aerated water machines, printing machines, sugarcane crushers and parts.	2,85,200
5 Amplifiers, speakers (theatre type), etc.	1,15,000
6 Steel trunks	1,20,000
7 Glue	1,15,000
8 Splints and veneers	1,01,000
9 Domestic utensils	6,65,000
10 Lungi	1,12,00,000
11 Pure and art silk fabrics	50,00,000
12 Matches	11,66,000
13 Jaggery	75,00,000
14 Hosiery	1,00,000
15 Electric heaters	51,300
16 Cutlery	18,000
17 Photo frames	8,500

Source : Field Investigation.

TABLE IX

Chief imports of manufactured articles into North Arcot district. (1959-60).

Name of the commodity.	Approximate value. RS.
1 Automobile parts	12,00,000
2 Electrical accessories	6,00,000
3 Radio parts and accessories	1,25,000
4 Bicycle parts and accessories	4,00,000
5 Builder's hardware	5,50,000
6 Woodscrews, wire nails, animal shoe nails, panel pins, etc.	6,50,000
7 Paints and varnish	8,00,000
8 Paper	21,92,000
9 Sanitaryware	2,41,000
10 Printing roller composition	50,000
11 Textile spares	20,000
12 Holdalls	11,900
13 Crown corks	7,000
14 G.I. pipe bends	12,000

Source : Field Investigation.

84. From the above table it would appear that the district is a great exporter of tanned hides and skins, lungis, pure and art silk fabrics and domestic utensils. Of these exports, tanned hides

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and skins brings to the country the much needed foreign exchange. Imports consisted of automobile parts, paper, bicycles and parts, electrical parts and accessories, paints and varnish, etc.

85. From the array of manufactured items mentioned in the import list, it could be deduced that the district provides a good absorbing market for automobile parts, bicycles and parts, electrical goods, paper, animal shoe nails and wire nails, paints and varnish, radio components, printing roller composition, etc. The scope for crown cork should not be judged merely from its meagre consumption in the district. Its prospects should be studied in the context of its popularity in the southern parts of the district, particularly Tiruvannamalai taluk and the proximity of this centre to Salem where there are some big aerated water manufacturing units.

86. The prospects for the development of the above industries are discussed in subsequent chapters.

Education facilities.

87. The general educational facilities available in the district in 1958-59 are given below :—

<i>Serial number and category.</i>	<i>Number of institutions.</i>	<i>Number of students.</i>
1 Primary schools (non-basic)	2,166	252,805
2 Primary schools (basic)	230	29,519
3 Secondary schools	68	38,380
4 Arts and science colleges	4	1,458
5 Teachers training schools (non-basic) ..	5	440
6 Teachers training schools (basic) ..	6	740
7 Teachers training college	1	49
8 Oriental colleges	2	282
9 Adult schools	152	4,584

Source : Office of the Director of Public Instruction, Madras.

88. Besides the above general educational facilities, there is also a medical college at Vellore with a total strength of 318 (1958-59).

89. Technical education is also given prominence in the district. A Government Polytechnic has been started for the district from the academic year 1959-60. For want of proper accommodation in the district, it is now functioning at Madras. As soon as accommodation is available, this will be shifted to the proper place in the district. This polytechnic offers three-year courses in Civil, Mechanical and Electrical Engineering. Its strength is 60 in Civil, and 30 each in Mechanical and Electrical Engineering.

90. During the current year another polytechnic has been started under private management at Gudiyatham.

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91. As discussed earlier the district is industrially backward and there is large unemployment and underemployment mainly in the rural sector. Unemployment is also prevalent among the educated (matriculates and non-matriculates) as evidenced from the live register maintained by the Directorate of Employment. **There is not much scope for them to receive apprenticeship training locally as there are no many mechanised factories in the district.** Industrialization of the district requires more technicians **trained in different engineering lines.** Even though the two polytechnics may offer training to candidates for Diploma courses, there are no industrial schools to offer short-term certificate courses excepting the three schools, one each at Katpadi, Melvisharam and Vellore offering training in carpentry. The strength of the schools during 1959-60 was 270. The duration of the course ranges from two to five years.

92. While the polytechnic can tackle the problem of training at the supervisory level, there is great need for ensuring a steady and continuous flow of technicians at the workshop level. It is, therefore, suggested that the Department of Industries and Commerce, Government of Madras, should explore the possibility of opening an Industrial Training Institute for imparting training to students for the following courses :—

- (1) Electricians;
- (2) Draftsmen (Mechanical);
- (3) Moulders;
- (4) Turners;
- (5) Fitters;
- (6) Welders; and
- (7) Pattern makers.

93. The proposed industrial institute may with advantage be attached either to the existing polytechnic in Gudiyatham or to the Industrial Estate in Katpadi.

Entrepreneurial capacity and attitude.

94. The district is mainly an agricultural district and the population depends mainly on the production and marketing of agricultural produce. The entrepreneurs who run the tanneries, textile mills, beedi factories, etc., have adequate experience in the organisation and management of industrial establishments.

95. Even though the business people in the district are interested in starting new industries, they hesitate to do so in view of the fact that they are not quite sure of the profitable line of manufacture.

96. Under the circumstances, in order to create proper climate for the establishment and development of new industries, education and persuasion appear to be necessary in the early stages. The State Department of Industries and the Small

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Industries Service Institute, Madras, should educate the people regarding the assistance given by the Government for starting prospective industries and also should persuade some entrepreneurs to start such new industries.

97. The State Government may also take initiative in starting some new industries which have prospects and subsequently hand them over to those entrepreneurs who come forward to take them up.

Trade Association and Organisation.

98. The following are some of the important trade associations functioning in the district.

- (1) South India Tanners and Dealers Association, Ranipet.
- (2) Arni Silk Twisting and Powerloom Factory Owners Association, Arni.
- (3) The North Arcot District Beedi and Tobacco Merchants Association, Vellore.
- (4) The Vellore Mango Merchants Association, Vellore.
- (5) The North Arcot District Cycle Dealers Association, Arcot.

99. Whereas other associations serve mainly as channels for representing the grievances to the Government, the South India Tanners and Dealers Association imports tanning materials such as wattle bark, wattle extract, etc., and distributes them amongst its member-tanners on no-profit no-loss basis. The Arni Silk Twisting and Powerloom Factory Owners Association also helps the member units in obtaining Actual Users Licence for the import of art silk yarn.

CHAPTER V.

DEMAND ANALYSIS.

100. In this chapter attempt is made to analyse the state of demand for various industrial goods which would indicate the scope for starting new industries. Demand can emanate from three sources, namely (1) large-scale sector (2) small-scale sector and (3) consumers in the district.

101. The following paragraphs deal with the assessment of demand arising from each sector.

(i) REQUIREMENT OF LARGE-SCALE UNITS.

102. The two industries organized on large-scale basis in the district are cotton spinning and acid, chemicals and sanitaryware manufacturing.

103. There are two cotton mills which require a wide range of textile parts and accessories like roller bearing insets, change wheels, inner tubes, bolsters, etc. The annual replacement demand for textile parts and accessories is estimated at Rs. 20,000.

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At present they are imported from Bombay and Coimbatore. The demand is not adequate to support any ancillary unit. The existing light engineering units at Gudiyatham where the cotton mills are situated are fairly well equipped to meet the recurring demand for textile spare parts.

104. The other large-scale industry is the East India Distillery and Sugar Factories, Ltd., Ranipet. It is estimated that the unit requires annually Rs. 5,80,000 worth of parts to replace the worn out parts of its machines. For this purpose tenders are invited from light engineering units. One small-scale engineering unit at Katpadi is presently meeting 25 per cent of the requirements of the large-scale unit for machine parts. Currently working with a melting capacity of 1 ton, the engineering unit has a proposal to instal a cupola of 2 ton capacity. With this increase in capacity the unit can look forward to the prospect of obtaining bigger orders from the large scale unit. Consequently, no ancillary unit is recommended.

(ii) REQUIREMENTS OF SMALL-SCALE UNITS.

105. The leading industries in the small-scale sector are leather tanning and minor engineering. A majority of the units in the tanning industry are non-power units. The minor engineering industry produces aerated water machines, metric weights, automobile parts, starters and switches, printing machines, sugar cane crushers and their parts, flour mill and oil expeller parts and parts of different machines. Other industries are soap, leather footwear, splints and veneers, matches, steel trunks and electrical appliances (heater type). There does not seem to be any scope for new units ancillary to these small-scale industries. However, abundant scope will be there for the setting up of ancillary units to feed the Bicycle assembly workshop at Vellore with parts and accessories of bicycles.

(iii) CONSUMERS' REQUIREMENTS.

106. Consumers' requirements of industrial goods give an idea of the area's need for industries. Their preferences will largely decide the pattern of industrial developments. The following table will indicate the extent of demand for different items in the district :—

TABLE X.

Products in demand in the district :

Name of product	Annual sales. RS.
1 Paper	21,92,600
2 Matches	14,26,000
3 Automobile parts	12,00,000

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Name of product.	Annual sales.
	RS.
4 Electrical accessories	6,00,000
5 Bicycle parts and accessories	4,00,000
6 Wirenails	3,00,000
7 Sanitaryware	2,41,000
8 Radio components	1,25,000
9 Steel trunks	1,20,000
10 Hosiery	1,00,000
11 Fluorescent chokes	96,000
12 Domestic utensils	95,000
13 Animal shoe nails	55,000
14 Aerated water machines, printing machines, sugarcane crusher parts, oil expeller parts, etc.	54,800
15 Link clips	50,000
16 Printing roller composition	50,000
17 Textile spares	20,000
18 G. I. pipe bends	12,000
19 Holdalls	11,900
20 Crown cork	7,000

Source: Field Investigation.

107. Of these items the major demand for domestic utensils, hosiery, steel trunks, aerated water machines, matches are fully met by the units in the district. In regard to bicycle components only 4 per cent of the demand in the district is met by the units in the district. The rest of the items are completely imported.

108. The position regarding industries mentioned in Table No. XIV is examined in detail in the subsequent chapters. In the following paragraphs, an attempt is made to discuss those industries that do not appear to have good prospects in the area.

(I) AERATED WATER MACHINES, PRINTING MACHINES, SUGAR CANE CRUSHERS AND OIL EXPELLER PARTS.

109. There are already four engineering units engaged in the production of aerated water machines. These units also undertake manufacture of sugar cane crushers, oil expeller parts, etc. Capacity in these units is sufficient to meet the current demand for the above goods. In respect of printing machines only one unit at Gudiyatham has attempted manufacture to meet the local demand from printing presses. According to information available from the knowledge sources, the annual demand for printing machines in the district is estimated at 12 numbers. The unit at present is undertaking production of sugarcane crushers also (power driven). It is suggested that if it concentrates on production of printing machines it can easily meet the annual requirements of treadle type printing machines. Hence no fresh units are recommended for the manufacture of aerated water machines, printing machines, oil expeller parts and sugar cane crushers.

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(II) TEXTILE MACHINERY SPARE PARTS.

110. As stated elsewhere, the requirements of the two cotton spinning mills in the district for textile machinery spare parts are met entirely by imports from Bombay and Coimbatore. The annual recurring demand emanating from these mills is estimated at Rs. 20,000. Among the textile machinery spare parts, certain cast items such as inner tubes, roller bearing insets, etc., have to be frequently replaced. The demand however is not adequate to sustain an independent economic unit. The existing light engineering units at Gudiyatham which have foundries attached to them can, without affecting their normal production activity, take up manufacture of the parts required by the mills by making fuller utilisation of their capacity. It may be mentioned here that a large idle capacity (80 per cent) exist in the 2 foundries at Gudiyatham which is attributed to the irregular and inadequate supplies of pig iron and coke.

(III) SANITARYWARE.

111. Sanitarywares are best suited for manufacture if the industry is located near the source of raw materials. Except for an inferior variety of clay, which is used for production of glazed pottery, occurring at Karigeri, the required raw material namely china clay, does not occur anywhere in the district. A small-scale unit recently started near Vellore is producing sanitarywares like urinals, etc. Clay for the unit has to come from Tindivanam in South Arcot district and from Andhra Pradesh.

112. The demand for sanitarywares in the district is estimated at Rs. 2,41,000. The entire demand is presently met by the Dalmia Cements (Bharat), Limited, Dalmiapuram. In addition, there is a unit at Ranipet producing sanitarywares on a large scale. It may be a difficult proposition for the existing unit to compete with well established units, with the clay obtained from distant places. However, the unit is succeeding in finding an outlet for its products through dealers in Madras. Having so far utilised one third of its capacity, the unit is confident of increasing its production 6 times, provided the State Government rendered financial assistance to enable the unit to erect an up-to-date furnace and obtain necessary machines.

113. The prospects for further development of the industry are rather bleak. The economic prospects of the industry also are not considered good, based on a survey recently conducted in the States of Andhra Pradesh, Madras and Kerala. No additional units need therefore be encouraged.

(iv) HOLDALLS.

114. There is always a sizeable floating population in Vellore on account of the famous hospital there. It is mainly from these people that the demand for holdalls arises, in addition to that

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emanating from the local population. It is ascertained that holdalls worth about Rs. 12,000 are annually sold in the Vellore market.

115. There is no small-scale unit manufacturing holdalls in the district at present. But the Industries Department has recently set up a training centre at Vellore for ready-made garments. This centre is intended to give training also in the production of holdalls. It has a capacity to provide training to 60 persons in all. At present 30 persons are undergoing training in the making of ready-made garments. The requirement machinery and equipment have been installed. The capacity of the training centre is for 30 holdalls per day.

116. In view of the limited demand for holdalls in the district and of the scheme for the making of holdalls in the departmental centre, no fresh unit need be encouraged in the industry.

(v) HOISERY.

117. A part of the district demand for hoisery is met by one unit at Gudiyatham. This unit, is also exporting its banians to centres outside the district. Idle capacity to the extent of 30 per cent exists in the unit. The industry as a whole in the Southern Region is reported to be in a state of over expansion. Moreover keen competition currently prevails among the units themselves. As such, there is no scope for additional units in the industry.

(vi) READY-MIXED PAINTS.

118. Even though the demand for paints in the district is good, the capacity in the existing small-scale and large-scale units in the country is quite adequate to meet the country's requirements. Moreover, the market for paints is highly competitive and therefore it may be difficult for new units to withstand successfully competition from established units. A survey recently conducted of the Paints Industry in the Southern Region has disclosed only moderate prospects for further development in the industry. The scope for new units is therefore very limited.

(vii) ELECTRIC WIRES OR CABLES.

119. The district demand for electric cables is reported to be 10 lakhs yards. The source of supply to meet this demand is imports from other regions and from abroad. There are very little prospects for a venture of this kind in the district. First, large idle capacity is reported in the large-scale sector. Secondly a survey conducted of the plastic and rubber covered wire industry showed poor prospects for small-scale manufacture. Thirdly, the high initial investment required to set up a plant limits the scope of manufacture in the small-scale sector. According to the scheme prepared in the Office of the Development Commissioner, Small Scale Industries, New Delhi, a minimum investment of Rs. 20

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lakhs would be required for the production of 13.6 million yards a year. For reasons mentioned above, no units are proposed for manufacture of cables in spite of their good demand and the fair margin of profit offered by the industry.

(VIII) ELECTRIC LAMP HOLDERS.

120. According to the dealers contacted it appears that lamp holders can be taken up for manufacture only along with other electrical accessories like wall plugs, adopter, etc. But as the demand for lamp holders in the district is only worth Rs. 27,000 approximately, it is considered that there is no scope for the establishment of a new unit in the district.

(IX) FRUIT PRESERVATION.

121. This industry is not considered suitable for development in the district, in spite of the huge supply of mangoes and their exports to centres in Bombay, Madhya Pradesh, Uttar Pradesh, etc. A detailed survey of the industry has revealed that there is enough capacity in the industry in the Southern Region to meet future increase in demand for preserved fruits.

CHAPTER VI.

STRUCTURE OF EXISTING INDUSTRIES.

122. The details of important large-scale, small-scale and cottage industries in the district are given separately in the following tables :—

TABLE XI.

Large Scale Industries in North Arcot District, 1959-60.

Serial number and name of industry.	Number of units.	Employment.	Investment.	Production.
(1)	(2)	(3)	(4)	(5)
		(RUPEES IN LAKHS.)		
1 Spinning Mills	2	1,162	41.01	75.26
2 Sanitaryware, acids, chemicals, fertilisers, etc.	1	1,397*	..	..

* Figure relates to the year 1958.

TABLE XII.

Small-Scale Industries in North Arcot district (1959-60).

Serial number and name of industry.	Number of units.	Fixed capital.	Working capital.	Total investment.	Employment.	Capacity.	Output.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		RUPEES IN LAKHS.	RUPEES IN LAKHS.	RUPEES IN LAKHS.		RUPEES IN LAKHS.	RUPEES IN LAKHS.
1 Leather Tanning	131	6.20	117.80	124.00	5,870	2,936.00	1,762.00
2 Leather footwear	30	1.98	0.90	2.88	120	8.70	6.00
3 Light engineering	9	3.29	1.40	4.69	182	7.64	3.73
4 Steel trunks	15	0.39	0.39	0.78	60	4.08	2.40
5 Glue	14	1.02	0.52	1.54	83	1.15	1.15
6 Matches—							
(a) Matches	14	1.58	4.17	5.75	340†	15.45	5.63
(b) Splints and veneers	2	0.53	0.40	0.93	93	2.36	1.02
7 Wooden furniture	8	2.13	1.43	3.56	223*	2.83	2.12
8 Soap	8	0.56	0.59	1.15	60	3.72	2.35
9 Art Silk weaving	9	2.70	2.50	5.20	100	..	5.57
10 Bicycle accessories (stands and carriers)	2	0.15	0.08	0.23	11	0.22	0.16
11 Agricultural Implements	2	0.14	0.11	0.25	12	1.08	0.68
12 Druggets and carpets	3	0.44	0.80	1.24	80	6.00	2.06
13 Hosiery	1	0.27	0.15	0.42	5	2.80	2.00
14 Photoframe	1	0.04	0.03	0.07	8	0.17	0.10
15 Gas plant	1	0.08	0.15	0.23	5	2.00	0.48
16 Electric heaters	1	0.20	0.07	0.27	6	0.93	0.57
17 Hand tools and cutlery	1	0.05	0.07	0.12	9	0.20	0.18
18 Speaker	1	0.24	0.35	0.59	11	3.00	1.24
19 Sanitaryware	1	0.33	0.03	0.36	9	0.50	6.20
20 Bonemeal	2	1.60	1.20	2.80	30	24.00	6.75
21 Nitric Acid	1	0.47	0.37	0.84	9	0.70	1.61

* Employment figure represents only the workers within the factory premises. About 1,210 people are employed outside the factory premises.

† Includes 140 students and 5 teachers in an industrial training school at Katpadi.

TABLE XIII.

Cottage and Village Industries in North Arcot district (1959-60).

<i>Serial number and name of industry.</i>	<i>Centre.</i>	<i>Employment (families).</i>	<i>production (RS. IN LAKHS).</i>
(1)	(2)	(3)	(4)
1 Pottery	Vellore, Vaniyambadi, Arni, Cheyyar, Tirupathur, Karigeri, etc.	338	1.69
2 Mat weaving	Cheyyar, Wandiwash, Avoor, Agarmacheri, etc.	1,445	8.67
3 Druggets, blankets and carpets	.. Walajapet, Madavalam, Madapalli, Nattarampalli, Athuvambadi, Thandavambattur etc.	390	3.76
4 Brass and copper utensils	Vellore, Polur, Tiruvannamalai, Arcot, etc.	262	7.86
5 Sericulture and silk rearing	.. K. V. Kuppam, Kosavanpudur, Odugathur, etc.	14	0.21
6 Canework and basket making	.. Walajapet, Vellore, Pallikonda, Tirupattur, Ambur, etc. ..	250	1.62
7 Carpentry and Blacksmithy	.. Arcot, Vellore, Walajapet, Tiruvannamalai, Chengam, Tirupathur, Karungalikuppam, Kaveripakkam, etc.	335	..
8 Oil crushing (oil and cake)	.. Tirupathur, Adiyoor Raghunathapuram, Kannadikuppam, Palampet, Wandiwash, Tiruvannamalai, etc.	448	14.83
9 Beedi making	.. Gudiyatham, Kaveripakkam, Vellore, Jalarpet, etc. ..	21,500 (persons.)	396.00
10 Pure Silk weaving	.. Arni, Tirumani, Manukupattur, etc.	3,500 (persons.)	90.00
11 Lungi weaving	.. Arni, Gudiyatham, Ambur, Cheyyar, Sholingur, etc. ..	20,000 (persons.)	154.00
12 Jaggery		-	70,000.00 (Tons.)

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123. Co-operative societies for palm gur making and hand-pounding of rice, etc., are also organised and are functioning well in the district.

124. Small-scale industries which have problems that need attention and those that have good scope for further expansion and development are discussed in the following pages :—

(1) LIGHT ENGINEERING INDUSTRY.

125. The Light Engineering Industry is an important small-scale industry which is fairly well organised in the district. The units in the industry produce various items such as aerated water machines, printing machines, automobile accessories, sugarcane crushers, metric weights, starters, etc. Some of the units undertake repair and re-conditioning of spares of oil engines, electric motors, automobile parts, etc., in addition to regular production.

126. There are 9 units engaged in the manufacture of minor engineering products, of which 4 in Vellore undertake mainly the manufacture of aerated water machines. Three units, two in Gudiyatham and one in Arni, manufacture sugarcane crushers (both bullock and power-driven), printing machines and starters.

127. Of the remaining two units, one in Vellore produces automobile accessories such as wheel bolts, king pins, bushes, etc., against orders. The other unit in Katpadi fabricates parts for fertilisers and chemical plants and acid drums against orders from Parry and Company, Madras.

Industry trends.

128. *Growth of the industry.*—Of the 8 units investigated, one in Arni and another in Katpadi were established in 1920. Initially they were undertaking mainly job work. It is only in recent years they began manufacturing sugarcane crushers and parts required by a large-scale unit. During 1942 and 1947, two more units came up and the rest only after 1950.

129. *Investment.*—The total investment in the industry is estimated to be about Rs. 4.69 lakhs of which, nearly 64 per cent constitute fixed capital * and the rest working capital. Investment in fixed capital represents the value of land, building and machinery.

130. *Employment.*—The employment in the industry is estimated at 182 persons—83 skilled, 85 unskilled and apprentices and the rest supervisory and clerical staff.

131. *Production.*—The total value of production in the industry is estimated at Rs. 3.73 lakhs as against the installed capacity of Rs. 7.64 lakhs. In addition to the regular production, 3 units

* Three units are housed in rented premises and another unit has taken on lease the ground space. Investment in fixed capital includes the capitalised value of these buildings and land.

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have undertaken repair work and received Rs. 23,000 towards repair charges. The two serious bottlenecks preventing the units from utilising their full capacity, are inadequate supply of raw materials, viz., pig iron, mild steel materials and coke and want of adequate finance for working capital.

132. *Industry problems.*—Pig iron, coke and mild steel are the basic raw materials required by the light engineering industry. Though some units have quota allotments for mild steel and coke, the supply of these items is reported to be irregular and inadequate. Due to non-availability of coke and pig iron some units are compelled to lay their cupolas idle and to obtain the cast items required by them from foundries in Madras. The annual requirements of the units in the industry are roughly estimated at 180 tons of pig iron, 220 tons of coke and 17 tons of mild steel.

133. It is recommended that the State Department of Industries and Commerce, Madras, should ensure steady supply of these essential raw materials when the supply position improves.

134. *Finance.*—Excepting two units which manage with their owned finance, others have borrowed nearly Rs. 56,000 for fixed and working capital purposes. The Department of Industries and Commerce have advanced long term loan of Rs. 7,000 for two units for purchase of machinery and for working capital. The State Bank of India has extended key loan facility to one unit to the limit of Rs. 10,000. The National Small Industries Corporation has supplied machinery to one unit valued at Rs. 10,000 under its hire-purchase scheme. The rest of the amount has been borrowed by the units from money-lenders and others at higher rates of interest ranging from 12 to 13 per cent.

135. Six units require additional loan to the extent of Rs. 82,500 for working capital purposes. Three units require additional machinery such as lathe, drilling machine, planning machine, moulding press, shaping machine, reboring machine, shaft grinder, etc. It is recommended that the State Bank of India may consider the possibility of extending credit facility to the units for working capital purposes under its liberalised scheme. The National Small Industries Corporation should favourably consider the question of the supply of machinery on hire-purchase when the units approach them.

136. *Industry prospects.*—There is not much competition among the units *inter se* since the products manufactured vary from unit to unit except in the case of 4 units which concentrate on the production of aerated water machines. Nearly 75 per cent of the aerated water machines produced in the district find market in Andhra Pradesh. Even in this line the impact of this competition has not begun to be felt by the units since the demand for aerated water machines is fairly good at present. There does not appear scope for new units in this industry and the prospective entrepreneurs may be dissuaded from taking to this line of production.

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137. There is one unit manufacturing starters in this district. It is able to meet competition from Coimbatore units adequately since the prices of its products are lower by Rs. 2 to 3 per piece.

138. In regard to future demand prospects, fairly good scope exists for prospective units to take up the manufacture of automobile parts, starters, and metric weights. It is not possible to give any quantitative estimate of increase in the demand for automobile parts but, with the increase in vehicles and traffic, the demand for automobile parts is bound to increase. In regard to starters, the production in the district is very insignificant. Nearly 75 per cent of the starters produced in the district are sold within the State. It may be worthy of mention that the current production falls 50 per cent short of the current consumption in the State and the demand is expected to increase by 200 per cent by 1965-66. Prospective entrepreneurs can take up the manufacture of these items. Scope also exists for expanding the production of metric weights consequent on their introduction since October 1960 in the districts of Madras, Chingleput, South Arcot and North Arcot. On the top of all this, the demand for replacements may also emanate from the Ambur Sugar Factory which can be utilized by the existing as well as prospective units.

139. The demand for the products manufactured by the light engineering units in the district is on the whole good and the industry has excellent prospects. Hence this industry is rated 'A'. The units in this industry may be given every assistance to produce to their capacity as well as to expand their capacity.

2. STEEL TRUNK.

140. There are 15 units engaged in the manufacture of steel trunks in the district. The units are concentrated mainly in Vellore.

Industry trends.

141. *Investment.*—The total investment in the industry is estimated at Rs. 78,000, of which, nearly 50 per cent represents working capital and the rest fixed capital.*

142. *Employment.*—The industry provides employment to 60 persons. The workers are generally paid wages on piece-rate terms.

143. The average earning of a skilled worker ranges from Rs. 2 to Rs. 4 per day. The unskilled workers are paid from 87 nP. to Rs. 1.25 per day.

144. *Capacity and output.*—The total production of the units is estimated to be 146 tons of steel trunks valued at Rs. 2.4 lakhs as against the estimated capacity of 240 tons valued at Rs. 4.08 lakhs in 1959.

* Of the fixed capital investment of Rs. 30,000, Rs. 9,000 represent the investment in tools and the rest of the capitalized value of buildings.

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Industry problems.

145. *Raw materials.*—B.P. Sheets of 18G to 26G are used in the manufacture of steel trunks. They are not easily available even for the few units which have quota permits. Therefore the units are compelled to use scrap in the form of tar drums extensively, which affect the quality of steel trunks. Further, inadequate supply of raw materials hampers production. The total requirement of B.P. sheets is estimated to be approximately 240 tons per year. Every effort, however, is being made by the Government to meet the increasing demand for the product on the part of the manufacturers.

146. *Industry prospects.*—Nearly 50 per cent of the steel trunks manufactured locally are consumed in the district and the rest are exported to the neighbouring districts in Madras State and in Andhra Pradesh. The future demand for steel trunks may be expected to increase considerably with the growth of population, increase in income and consequent rise in the general standard of living. Based on the past experience of the manufacturers, the future demand for steel trunks is expected to increase at the rate of 15 per cent per annum from the current consumption of 73 tons valued at Rs. 1.12 lakhs to 138.7 tons valued at Rs. 2.28 lakhs in 1965-66. The industry is however, rated 'B' having moderately good prospects due to the present supply position of B.P. sheets, the essential raw material.

3. GLUE.

147. Glue is a subsidiary industry to the leather tanning industry. Trimmings and cuttings of raw hides and skins and fleshings from tannery are converted into glue.

148. There are 14 units in the district manufacturing glue of which 11 units are located in Ranipet and the rest in Vaniyambadi.

149. *Industry trends.*—The organized units for the manufacture of glue came into being only after 1956. Nearly 50 per cent of the units are of very small size.

150. *Investment.*—The total investment in the industry is estimated approximately at Rs. 1.54 lakhs—Rs. 1.02 lakhs in fixed capital* and Rs. 0.052 lakhs in working capital. The units in the industry are non-mechanised and they use simple equipments such as boiling drums, ovens, 'thattis', etc.

151. *Employment.*—The total employment in the industry is estimated at 83. Nearly 70 per cent of the workers are unskilled. The skilled workers are paid Rs. 1.50 nP. to Rs. 2.00 per day and the unskilled workers from Re. 0.75 nP. to Re. 1.00 per day.

152. *Capacity and output.*—The total production of glue in the district is estimated at 82 tons valued at Rs. 1.15 lakhs. The units are reported to be producing more or less to capacity.

*Fixed Capital includes the Capitalized value (Rs. 63,000) of the buildings of all the Units.

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153. *Industry problems.*—The units are adopting very crude method of production. The processes adopted in the manufacture are very simple such as (1) boiling of fleshings in the drum, (2) pouring the extraction in dies and (3) drying it in the air inside the premises. Neither improved machines are used nor chemical processes are adopted in the manufacture. The quality of glue manufactured by the small-scale units are not up to the standard.

154. The units can adopt the improved methods of manufacture of glue as given in the scheme in Appendix I. It is suggested that the Chemical Section of the Small Industries Service Institute, Madras, should assist the units in adopting the improved processes of manufacture and to improve the quality.

155. *Marketing.*—Glue is sold directly to the dealers in Madras. It is used in the match industry, paints and varnish industry and by the Integral Coach Factory, Madras. The Integral Coach Factory is reported to be a major consumer of glue, and it gets its supplies from Shaw Wallace & Company, Madras, because of the quality of the glue it produces.

156. It is suggested that the Small Industries Service Institute, Madras, should make efforts to procure orders for glue manufactured by the small-scale units in the district from the Integral Coach Factory after ensuring quality of the product.

157. *Industry prospects.*—Even though the industry is of recent origin, it is gradually developing into an organized industry. The demand for glue is expected to increase with the development of industries such as match, paints and varnish, furniture, etc. The glue manufactured by the small-scale units will have a ready market from the Integral Coach Factory, Madras, subject to the condition that the quality of the glue produced by the units is improved.

158. Based on the past experience of the manufacturers, the demand for glue is expected to increase by not less than 10 per cent per annum. Accordingly the demand for glue in 1966-66 will be of the order of 131 tons valued at Rs. 1.84 lakhs. This industry is rated 'A' having excellent prospects provided the quality of the glue is improved.

4. SANITARYWARE.

159. A unit for the manufacture of sanitaryware in Virupakshipuram near Vellore was established in 1959. The unit produces fire clay bricks, glaze channels, flat urinals, etc.

Industry trends.

160. *Investment.*—The total investment in the unit is Rs. 35,500—Rs. 33,000 in fixed capital and the balance in working capital.

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161. *Employment*.—The unit provides employment to nine persons—three skilled workers, five unskilled workers and one clerk. The skilled workers are paid Rs. 52 per month and the unskilled workers from Rs. 30 to Rs. 45 per month.

162. *Capacity and output*.—The unit produced 12 tons of sanitaryware valued at Rs. 14,000 in 1959 as against the installed capacity of 42 tons valued approximately at Rs. 50,000.

Industry problems.

163. *Raw materials*.—The basic raw materials used in the industry are fire clay and other clays. Fire clay is obtained from Tindivanam in South Arcot district and other clays from Andhra Pradesh.

164. *Finance*.—The unit is not able to produce to capacity due to want of adequate finance for working capital. It has obtained a long-term loan of Rs. 2,000 from the Department of Industries and Commerce, Government of Madras, against the security of machinery and it requires another loan of Rs. 5,000 to meet its working capital requirements. It is recommended that the State Government may consider the possibility of extending a second loan against the mortgage of building and other assets, since this is the only unit of its kind in this district.

165. Further, the unit requires additional machinery such as pug mill, air compressor, etc., for the expansion of its existing capacity. The National Small Industries Corporation may consider the supply of machinery on hire purchase when the unit applies for it.

166. *Industry prospects*.—The large-scale unit at Ranipet markets its sanitaryware all over the country while the small-scale unit sells its products through the dealers at Madras. Even though competition exists between the large-scale and the small-scale units it has not adversely affected the latter. The reasons are (1) overheads like rent, factory establishment and depreciation of machinery are comparatively smaller in the case of the small-scale unit; (2) supervision is done personally by the proprietor and hence there is no additional expenditure on supervision as is the case with the large-scale unit. As a consequence, the cost of production in the small-scale unit is reported to be 15 per cent to 20 per cent lower than that of the large-scale unit. The cumulative effect is that sanitarywares produced by the small-scale unit find a ready market through dealers in Madras.

167. The small-scale unit however has to depend for the basic raw material, viz., clay on places outside the district including those in Andhra Pradesh. Therefore it is not advisable to suggest another unit even though the district demand is estimated to be of the order of Rs. 2,41,000 per annum. The existing unit may be encouraged to produce to capacity and even to expand its capacity since the proprietor is a technically competent and experienced person.

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5. LEATHER TANNING INDUSTRY.

168. Leather tanning is the most important industry in the district. The hides and skins tanned in the district are known for their quality and they find good export market.

169. The industry is concentrated in places like Vaniyambadi, Pernampet, Ambur, Ranipet, Melvisharam, Vellore, Katpadi, etc. During the time of investigation about 131 tanneries were reported to be functioning in the district.

170. The industry in the district has been comprehensively surveyed by the Economic Investigation Section of the Small Industries Service Institute, Madras, and the Regional Industry Outlook Report on the industry has also been prepared recently.* Therefore, only 10 per cent of the units were covered during the present survey with a view to bringing the data up-to-date.

171. As the industry is analysed in detail in the regional report referred to above, no attempt is made in this chapter to discuss about it except to furnish the current data and the summary of some conclusions and recommendations made in the regional report.

172. *Investment.*—The total investment in the industry in the district is estimated at Rs. 124 lakhs. Nearly 95 per cent of investment is in fixed capital and the rest in working capital. The fixed capital investment includes the value of tools, equipment and machines, but excludes the value of buildings, soaking pits, drying yards and wells which in most cases have been taken on rent.

173. *Employment.*—It is estimated that the industry provides employment to 5,870 persons of whom nearly 68 per cent are skilled, 20 per cent are unskilled and the rest supervisory and clerical staff.

174. *Capacity and output.*—The total value of hides and skins tanned in the district is estimated at Rs. 1,762 lakhs approximately in 1959. The units in the industry utilize nearly 60 per cent of their capacity. The main reason for the idle capacity in the industry is attributed to the general shortage of hides and skins in the country. Nearly 90 per cent of the skins and hides tanned in the district are exported to foreign countries.

175. Summary of important recommendations made in the Report on Leather Tanning Industry (Southern Region) is given below :—

(i) *Government Policy relating to the industry.*—According to the import policy (April-September 1960) import of raw hides and skins from Pakistan on Open General Licence has been allowed up to the end of June 1960. It is recommended that the Open General Licence may continue to meet the raw material requirements of this industry which contributes substantially to the export earnings of the Country.

* Please refer to the Small-Scale Industry Analysis and Planning Report—Leather Tanning Industry (Southern Region).

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(ii) The Government of India may consider the granting of Actual User's Licence to the tanners for the import of dyes and chemicals based on their actual production. The units which are too small may be granted licences if they form associations or co-operative societies.

(iii) Raw goat skins are presently being exported abroad under quota licences. Quota licences for exports of these should be progressively reduced in the interests of the development of the tanning industry in the country.

(iv) The expected increase in internal demand for leather is estimated to be Rs. 350 lakhs (at 1958 prices) by the end of the Third Plan period (1965-66). As there is a large idle capacity in the small-scale sector, increase in demand should be allowed to be met only by the small-scale sector. Apart from the fuller utilization of the existing capacity in the large-scale sector, expansion of capacity in this sector (large-scale) should not, therefore, be normally allowed till the end of the Second Plan period (1961). The position may, however, be reviewed after the commencement of the Third Plan, say some time in the year 1962.

(v) *Exports.*—It is recommended that the present practice regarding the auctions currently held in London may continue for some more time in the interests of the industry. But gradually India should develop an international leather market at Madras and start holding auctions here on the lines of the London auction. In the initial stages while having the auction in Madras, the auction in London should continue so as not to disturb the existing pattern of the trade.

(vi) The Leather Export Promotion Council should consider the possibility of constructing a bonded warehouse in Madras for stocking tanned leather. The Government of India may consider offering financial assistance to the Council when the latter comes forward with specific proposals.

(vii) The Leather Export Promotion Council in consultation with other concerned agencies should consider whether insurance may not be effected also with Indian or with foreign companies having branch offices in the importing country of they can offer better terms than British Lloyd's under-writers.

(viii) The South India Skins and Hides Merchants' Association, Madras, South Indian Tanners and Dealers' Association, Ranipet, and other similar associations in the region should, through the Leather Export Promotion Council and the Government of India, take steps to amend that part of the contract which relates to the short-weight.

(ix) To protect the interests of the exporters, the Government of India in mutual consultation with the buyers in the United Kingdom and the Continent explore the possibility of the shipped weight being accepted as final instead of the landed weight. Alternatively the contract should be amended so as to allow for appeal in Indian courts in case the Indian exporter disagrees with the arbitrators' verdict.

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(x) A representative of the Leather Export Promotion Council should be permanently sanctioned at London to protect the interests of the export trade and specially to look after the settlement of claims. Towards the expenditure connected with the sanctioning of the representative, the industry (leading exporters) may contribute at a nominal rate, say, Re. 1 for every bale of E.I. tanned leather exported.

(xi) The Government of India through the commercial section attached to the Indian High Commission in London, may also render all possible assistance to the representative in the settlement of claims.

Raw materials.

(xii) *Raw hides and skins.*—The Development Commissioner for Small-Scale Industries may take up with the Railway Board the question of providing wooden wagons for transporting raw hides and skins instead of the iron wagons presently used. In case this is not possible, the Railway Board may consider providing special wagons with wooden floorings/linings at the bottom as well as the sides.

(xiii) It is recommended that the All-India Khadi and Village Industries Commission, may, in consultation with the Ministry of Food and Agriculture and different State Governments in the region, consider drawing up for the Third Plan period, an intensified programme of conducting 'flaying' demonstrations in various centres of the region—both towns and villages—and educate the village tanners in improved methods of flaying.

(xiv) The Hide Cess Committee has recommended that a premium should be given for better flayed hides. In the interests of the preservation of the national wealth, flayers in organized slaughter-houses in different centres in the region should be paid a premium for good flaying by the respective State Governments in the region.

(xv) *Tanning materials.*—According to the import policy for the period April–September 1960, wattle bark and wattle extract are allowed to be imported on 45 per cent quota to established importers and also to actual users. Wattle bark and wattle extract being essential tanning materials their import in the coming years may be continued without further reduction, at least until such time as the availability of these items increases in Madras State as a result of the efforts being currently made.

(xvi) The Forest Department of the Government of Madras should make arrangements for giving suitable training to the personnel charged with the actual task of production and storage of wattle bark, under the scheme for the development of wattle plantations in different parts of Madras State envisaged in the Second and Third Five-Year Plans.

(xvii) The Government of Madras should explore the possibility of establishing a wattle extract factory in one of the two centres, viz., Upper Palni or Nilgiris where wattle plantations are being developed.

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(xviii) *Finance*.—The Government of India may consider as far as possible allotting more funds for disbursements to the State Governments so that the latter may increase the grants for construction of colonies for Harijans who form the majority of workers in the industry.

(xix) The State Bank of India may consider under its 'liberalised scheme of assistance to small-scale industries' offering financial assistance to the industry against the hypothecation of stock-in-trade together with fixed assets, if necessary. Besides individual growth history, business integrity of the units may also be taken into consideration while granting loans.

(xx) The industry being mainly export-oriented, the State Departments of Industries in the region specially those of Madras and Andhra Pradesh should consider offering liberal financial assistance under the 'State-Aid to Industries Act'. Consideration of the applications and disbursements of the loans should be done as quickly as possible.

176. *Industry prospects*.—Leather tanning industry is rated 'B', i.e., having moderately good prospects. Although there are good demand prospects in future, the scope for the expansion of the industry is limited because of the existing idle capacity and the general shortage of raw hides and skins in the country.

177. The existing units in the industry deserves all-out assistance from the Government because of the prominent place the industry occupies in the export-trade of the country.

6. MATCH INDUSTRY.

178. Match industry is also another well organised industry in the district. There are 14 units (three 'B' type units, five 'C' type units and six 'D' type units) manufacturing matches in the district of which seven are located in Gudiyatham, two in Vaniyambadi and one each in Vellore, Katpadi, Ambur, Timri and Tiruvannamalai. There are two other units one in Tirupathur and the other in Gudiyatham manufacturing splints and veneers.

Industry trends.

179. *Investment*.—The total investment in the units manufacturing matches is estimated at Rs. 5.75 lakhs—Rs. 1.58 lakhs in fixed capital and Rs. 4.17 lakhs in working capital. Nearly 50 per cent of the investment in fixed capital represents the capitalised value of the buildings in which the units are housed.

180. The investment in the units producing splints and veneers is Rs. 93,000—Rs. 53,000 in fixed capital and Rs. 40,000 in working capital. (The fixed capital investment is inclusive of Rs. 34,000 which is capitalised value of buildings.)

181. *Employment*.—The units producing matches provide direct employment to 340 persons within the factory premises and to 1,210 persons outside the factory premises. The latter

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category of persons are mostly women and children who do such jobs as pasting boxes, filling match frames with splints, etc., in their houses. The skilled workers in the industry are paid monthly wages ranging from Rs. 35 to Rs. 100. The unskilled workers are paid, piece-rate wages. Their daily earnings range from 0.50 nP. to Re. 1.00.

182. The splints and veneers manufacturing units provide employment to 93 persons—14 skilled, 75 unskilled and 4 clerical and supervisory staff. The skilled workers are paid monthly wages ranging from Rs. 55 to Rs. 110. The unskilled workers are paid daily wages ranging from 0.50 nP. to Re. 1.25.

183. *Capacity and output.*—The annual production of the units manufacturing matches is estimated at 5.63 lakhs gross of match boxes valued at Rs. 26 lakhs in 1959 as against the installed capacity of Rs. 15.4 lakhs gross of boxes * valued at Rs. 70.94 lakhs.

184. The units producing splints and veneers produced splints to the value of Rs. 1.01 lakhs and veneers worth about Rs. 1,200 in 1959 as against the combined capacity of Rs. 2.36 lakhs in terms of value.

Industry problems.

185. *Raw materials.*—The basic raw material for the manufacture of splints and veneers is soft-wood such as 'Thanukku', 'Mul Elavu', etc., which are obtained mostly from Kerala State. The supply available from local forests is very inadequate and as such the units experience difficulty to get adequate supply of the required type of wood from Kerala at economic prices. The problem of the industry in respect of raw material will be solved to a considerable extent when the soft-wood plans planted in 400 acres by the Forest Department of Government of Madras are ripe for utilisation.

186. *Industry prospects.*—More than 55 per cent of the matches produced in the district are sold within the districts and rest in the neighbouring districts in Madras State, Andhra Pradesh and Mysore State. There is keen competition in the industry not only between the large-scale mechanised sector and the small-scale non-mechanised sector, but among the small-scale units *inter se*.

187. In a highly competitive market, the small-scale units find it very difficult to market their products. Therefore, the industry can be rated 'B' having only moderately good prospects.

188. The splints and veneers manufacturing units produce mainly against the orders from WIMCO and they have an assured market. Based on the experience of the units, the demand for splints is expected to increase by 15 per cent per annum. Notwithstanding the demand, the industry may be rated only 'B' due to the present inadequate local supply of softwood, the basic raw material required for the industry.

* Capacity is estimated on the basis of maximum capacity of different categories of units, allowed for the purpose of assistance and collection of revenue.

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7. LEATHER FOOTWEAR.

189. Carried on by traditional cobblers from times immemorial the industry has gradually grown in stature from the influence of proximity to the source of raw material, namely, the tanning industry. Spread fairly over the district, the industry finds its concentration in Vellore. Thirty units are at present functioning in the district. Besides there is a Government unit attached to the Central Jail, Vellore, which does not manufacture footwear but undertakes only stitching and finishing of police boots sent in half finished shape from the Government Footwear Factory at Perambur.

Industry trends.

190. *Investment.*—The fixed and working capital are in the ratio of 2 : 1 in a total investment of Rs. 2.88 lakhs. A major portion of the fixed investment is taken up by the value of land and building.

191. *Employment.*—The industry provides employment to 120 persons. The Government unit employs 177 workers of whom 12 are skilled workmen. The average daily earning of a worker ranges from Rs. 1.50 to Rs. 2.50.

192. *Capacity and output.*—It may not be quite proper to speak of installed capacity in an industry which makes but sparse use of machinery. As analysis, however, of the position of individual units indicated that the industry utilized 70 per cent of its capacity (i.e., Rs. 8.00 lakhs) at the current levels of investment and employment.

Industry problems.

193. *Raw materials.*—The raw material used in the industry is different kinds of leather. Buttons, shoe eyelets, nails, etc., form the accessories. It is complained that buttons of indigenous make are inferior in quality to imported ones though cheaper in price. It is, therefore, suggested that the button manufacturers in the country may be persuaded to improve the quality of their buttons.

194. *Technique.*—The main problem of the industry relates to technique. Except for sewing machines to stitch 'uppers' no machines are used. Operations like marking, cutting and stitching are all done by hand involving the use of only simple tools. As a consequence they have suffered from the capacity to compete effectively with machine-made goods. Hence workers in the industry need training in the modern technique of production and also in the use of machines to which they have not shown any aversion. Frequent demonstration by the Mobile Footwear Van of the Small Industries Service Institute will be of help in this regard.

195. *Industry prospects.*—About 80 per cent of the production is sold in the district, the rest being sent to neighbouring districts in Madras and Kerala States. The future demand for leather footwear is expected to increase as a consequence of increased footwear

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consciousness, rise in the general standard of living, growth of population and last but not least the bright export prospects. Production of footwear in a selected small-scale units indicated an average annual increase of 15 per cent under the cumulative influence of the factors mentioned earlier, the annual rate of growth is expected to be maintained in the industry in the future. Based on the above increase, the demand for leather footwear would go up by Rs. 5.40 lakhs in 1965-66.

196. Competition no doubt is experienced from mechanized units in the country in regard to shoes. In view however of the good demand prospects, the advantages of economy in production due to proximity to the source of raw material and the willingness of the manufacturers to adopt modern methods of production, the industry deserves to be rated 'A'.

8. WOOD FURNITURE.

197. The furniture industry traces in its origin to the age-old institution of traditional carpentry. The demand for furniture has for years been met against orders. Even though this practice is continuing, only recently has the industry been set foot on an organized pedestal in the form of workshop with capital investment and fuller employment. The various kinds of furniture manufactured are :—

- (i) Office furniture;
- (ii) restaurant furniture;
- (iii) hospital furniture; and
- (iv) household furniture.

Eight units are presently engaged in making furniture. One of the 8 units is organized on a co-operative basis.

Industry trends.

198. *Investment.*—The current investment in the industry is Rs. 3.56 lakhs of which fixed capital constitutes about 60 per cent. Comparatively higher investment in fixed capital suggests that a few units in the industry are mechanized and organized on sound lines. Investment in individual units ranged from Rs. 4,500 to Rs. 1,56,731.

199. *Employment.*—Employment is provided to 223 workers. The skilled, semi-skilled and un-skilled workers are in the ratio of 3 : 2 : 3. Their daily wage rates varied from Re. 1 to Rs. 3.50 depending on skill.

200. *Capacity and output.*—The capacity in the industry has been utilized effectively. The current production is worth Rs. 2.12 lakhs which accounts for 75 per cent of the current capacity in the industry. With not much of difficulty experienced in the industry through the liberal attitude of the State Industries Department and the National Small Industries Corporation in the matter of financial

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aid and the speedy disposal of applications for machinery under the Hire Purchase Scheme respectively, it is but proper to assume that the industry will fully utilize its existing capacity in another 2 or 3 years.

Industry problems.

201. *Finance*.—It has been alleged that certain units have not properly utilized loans sanctioned to them. The State Industries Department would be advised to investigate thoroughly the credit-worthiness of units applying for loan before granting its sanction to the same.

202. *Raw materials*.—Wood of different kinds is the raw material. Other material used are glue and polish and hardware. None of the units reported any difficulty in their supply.

Industry prospects.

203. The demand for furniture emanates from households and institutions. Demand is expected to go up in proportion with the rise in the standard of living and the level of income. Developmental expenditure in the field of commerce and industry and education and social welfare is expected to bring about increased activity in these fields leading to acceleration in the growth of demand. There is, therefore, every likelihood of the past trend in the production (i.e., 6 per cent per annum) being maintained in the future also. The industry is however rated only 'B' having moderately good prospects since it depends much on Governmental and institutional demand for existence and since the demand for furniture is more or less in-elastic.

9. SOAP INDUSTRY.

204. The industry finds its concentration in Vellore and Vaniambadi. In all, there are 8 units functioning at present. All the units are producing washing soaps.

Industry trends.

205. *Investment*.—Fixed capital and working capital employed in the industry are almost equal in proportion in a total investment of Rs. 1.15 lakhs. Keen competition among the units has restricted the scope of investment in working capital.

206. *Employment*.—About 60 workers are employed in the industry. The skilled workers mix the different ingredients of soap in proper proportion while the unskilled workers engage themselves in cutting soap into bars and cakes and packing the same.

207. *Capacity and production*.—The current production is estimated to be Rs. 2.35 lakhs. The industry is faced with an idle capacity of 38 per cent which is attributed to keep competition in the soap market and fluctuation in the price of oils.

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Industry prospects.

208. The industry is rated only 'B' having moderately good prospects. No doubt the demand for soap will increase steadily in the future, but the rather large idle capacity, the keen competition among the units and the poor quality of soap produced are factors limiting the scope for further expansion in the industry.

10. DRUGGETS AND CARPETS.

209. Considering the quantum of production and employment opportunities provided, the industry may be said to occupy an important place in the industrial structure of the district. There are two sectors in the industry, the organized and the unorganized. Production activity is greater in the unorganized sector than in the organized sector, the latter accounting only for 35 per cent of the total production in the industry. Three units are in the organized sector situated in Walajapet. In the unorganized sector 390 families are engaged in making druggets, carpets and blankets. They are spread over places like Walajapet, Madavalam, Madapalli, Nattarampalli, etc. The first organized unit was started in the early decade of the 20th century.

Industry trends.

210. *Investment.*—The total investment in the organized units is Rs. 1.24 lakhs of which fixed capital is Rs. 0.44 lakh and the rest working capital.

211. *Employment.*—The organized sector provides employment to 80 workers, while unorganized sector provides means of living to 390 families. Wages are paid on piece-rate basis, i.e., Re. 0.75 to Re. 1 per yard for druggets and Rs. 4.50 per yard for carpets. Normally a wage earner weaves in a day 2 to 3 yards of druggets and a yard of carpet.

212. *Capacity and production.*—Of a total production worth Rs. 5.82 lakhs in the industry, the organized sector constitutes only 35 per cent. The idle capacity in the organized sector is huge (i.e., 65 per cent). Keen competition exists among the organized and unorganized units within the district and in the adjacent Salem district. Moreover, the difficulty in getting sufficient quantity of wool at regular periods due to its export to Mysore State and abroad has aggravated the hardships of the units engaged in the industry.

Industry problems.

213. *Raw materials.*—Wool is the principal raw material consumed in the industry. It is normally available from the local tanneries. Other materials used are yarn of cotton and jute. To impart colour to the druggets and carpets, dyeing chemicals are used. Irregularity in the supply of wool is reported by the industry in spite of its availability locally. The scarcity of wool is reported to be due to its export from the district. This difficulty is

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not expected to be of a lasting nature. With the starting of the wool processing centre at Vinnamangalam by the State Industries Department, it is hoped that regular supply of wool to the industry will be ensured.

Industry prospects.

214. The market for druggets and carpets is wide. About 97 per cent of the production is sent outside the district of which 50 per cent is exported abroad to countries such as U.K., U.S.A., Australia, etc., and the rest sold in different parts of the country, namely, Bombay, Calcutta, etc. The trend in production in the industry did not give any room for complacency since it has been declining progressively. The burden of competition among the units together with the hardship experienced from the irregular supply of wool appears to have weighed heavily on the units with the result they have found it difficult to utilize effectively the existing capacity. Further progress in the industry is thus impeded. The future prospects of the industry depends much on the regular supply of wool at reasonable price. The industry is, therefore, rated only 'B' having moderately good prospects.

CHAPTER VII.

NEW INDUSTRIAL POSSIBILITIES.

215. The prospects for new industries in the district depend on 3 factors : (1) resources in the area, (2) demand in the district in particular and the southern region in general, and (3) industrial wastes.

216. On the basis of the analysis of the resources and demand given in the earlier chapters, the following new industries appear to have scope for development :—

- (1) Sandalwood oil (based on resources).
- (2) Fluorescent chokes (based on demand).
- (3) Animal shoe nail (based on demand).
- (4) Radio components (based on demand).
- (5) Bicycle parts and accessories (based on demand).
- (6) Link clips (based on demand).
- (7) Wire nails (based on demand).
- (8) Paper (based on demand and resources).
- (9) Printing roller composition (based on demand).
- (10) Crown corks (based on demand).

217. The other industries suggested for development are based on the industrial wastes from the sugar factory at Ambur and the tannery industry in the district. These industries are (1) Industrial alcohol and (2) Leather Board. It may be mentioned in this connection that the Central Leather Research Institute have successfully completed their research on Leather Board on which they had been till recently engaged.

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218. The locations for different prospective industries are suggested on the basis of demand, availability of skill, proximity to the source of raw materials and industrial waste. In the discussion on individual industries, recommendations are also made for their locations.

(i) BASED ON RESOURCES.

(1) *Sandalwood oil.*

219. The State Government may explore the possibility of setting up a sandalwood oil plant at Tirupathur. Tirupathur in the district is eminently suited for location of the industry due to its proximity to the source of raw material, namely, sandalwood.

220. The forest of North Arcot district is known for its sandalwood. Sandalwood trees are at present felled and sized in the forest depot at Tirupathur before they are auctioned to bidders from Bombay. In the year 1959-60, about 780 tons of sized sandalwood valued at Rs. 51 lakhs were sold by auction. It may be relevant to mention in this context, that a unit at Tirupathur was till recently distilling sandal oil. This unit had to be closed due to certain differences among the partners.

221. The prevailing system of sale by auction of sandalwood is not considered to be in the best interest of the industry. In the period 1958-60, the price of sandalwood fluctuated between Rs. 3,496 to Rs. 6,556 per ton. For an industry depending for its success entirely on the supply of raw material at an economic price, such fluctuations in price may seriously affect the stability of the industry. The State Government may, therefore, consider abolition of this system of auction. An attempt may be made by the State Government to revive the defunct unit at Tirupathur. If this is not feasible and if private initiative feels hesitant to come forward, the State Government may start the venture and then hand it over to a private entrepreneur.

(ii) BASED ON DEMAND.

(2) *Fluorescent chokes.*

222. Fluorescent chokes are used in the fluorescent tube lights. These are the coils wound on laminated iron cores for the induction effect. These are mainly used in the alternating current circuits for limiting the current. Fluorescent chokes are suggested for manufacture in the district.

223. *Industry prospects.*—Demand for chokes arises from factories, cinema theatre and houses. More and more people to-day are switching over to this type of lighting. On account of greater brightness and economy in the consumption of current, a fluorescent tube light has certain advantages over the conventional incandescent lamp. The total district demand for chokes is reported to be 24,000 pieces per annum. According to dealers and other knowledgeable persons this demand is expected to increase 3 to 4 times by the end of the Third Plan period.

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224. *Competition*.—There are at present no units manufacturing chokes in Madras State. They are presently imported from Delhi. One piece costs Rs. 4 to Rs. 4.50. More than one dealer contacted in this regard evinced interest in the manufacture of this item. They are confident of making chokes within the imported price.

225. *Development programme*.—The district demand is just adequate to sustain an economic unit. Such a unit may be set up at Vellore with a capacity of 24,000 chokes per year.

226. *Investment*.—The total investment in the industry according to the scheme on fluorescent chokes and transformers for fluorescent tube light and radios may be round about Rs. 1.25 lakhs and the profit margin may be about 8 per cent. The machinery and equipment required for the manufacture of fluorescent chokes are indicated in Appendix II.

(3) *Animal shoe nails.*

227. Animal shoe nails are made of special steel, meant for fixing shoes to the hooves of animals.

228. *Industry prospects*.—The district demand for animal shoe nails is estimated at 22 tons valued at Rs. 55,000. This demand is met partly by imports from foreign countries such as Sweden and Denmark and partly by indigenous animal shoe nails from Karur. According to the dealers the demand for animal shoe nails is expected to increase at 10 per cent per annum. The main factors governing demand are (a) restriction on imports, (b) increase in cattle wealth and (c) reliance placed on bullock carts and horse carts for movement of goods and transport of persons from remote villages. Horse carts and bullock carts play an important part in the transport of persons and goods in North Arcot district.

229. *Competition*.—Animal shoe nails manufactured in Madras State is mostly on cottage basis. The quality of the indigenous nails are far inferior to imported nails. While the cost of indigenous nails is Rs. 135 per cwt. that of imported ones is Rs. 250. The imported shoe nails are in short supply in the market and the existing stock is sold at a price as high as Rs. 500 per cwt. On account of the import restrictions, the industrial field is left without competition. It is quite within the competence of an organized unit to provide quality animal shoe nails well within the price of imported nails.

230. *Development programme*.—A unit with a capacity of 25 tons a year can easily be started to meet the district demand for animal shoe nails. Such a unit will require an investment of Rs. 1,25,755 *. The unit will have to obtain the quota for M.S. wire (bright annealed open hearth square wire) from the Director of Industries and Commerce, Madras.

231. *Location*.—The proposed unit may be started either at Tiruvannamalai if private entrepreneurs come forward or in the balcksmithy centre at Kalasapakkam, 10 miles from Tiruvannamalai, for, the required skill is available at these centres.

* Please see Appendix III for further information.

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(4) *Radio Components.*

232. *Radio components industry* has not yet developed in the Southern Region. A unit at Vellore was manufacturing speakers, but could not succeed for want of finance. This unit is now producing theatre type speakers and amplifiers. It is in this context that components like speakers and transformers are suggested for manufacture at Vellore.

233. *Industry prospects.*—The scope for the manufacture of radio components such as speakers and transformers is considered as excellent. The present demand for transformers in the district is roughly 7,200 pieces valued at Rs. 25,000. Including speakers the value may come to about Rs. 60,000. The dealers are inclined to put the annual increase in demand at 6 per cent per annum. At present they are imported from Delhi and Bombay. The dealers are of opinion that transformers and speakers can be locally made at a cost below the imported price. The wholesale price of transformers ranges from Rs. 3.50 to Rs. 18 and that of speakers from Rs. 14 to Rs. 18. The report on Domestic Wireless Receiver sets, components and Accessories Industry in the Southern Region has given 'A' rating to components manufacturing and has anticipated the demand for components to increase from Rs. 13.47 lakhs in 1958 and to Rs. 45.30 lakhs in 1966, i.e., an increase of 70 per cent during an 8-year period.

234. *Competition.*—Components manufacture is practically non-existent in Madras, Andhra Pradesh and Kerala States. All the requirements are met by imports from Bombay and Delhi.

235. *Development programme.*—The unit at Vellore producing at present theatre type speakers and amplifiers may be encouraged to diversify its present line of production so that it can include within its sphere of manufacture radio speakers and transformers. This unit can gradually grow into a feeder unit to other radio assembly units. It will be of interest to note that the report on 'Domestic Wireless Receiver sets, components and accessories industry' had made a recommendation for the setting up of a unit at Madras to manufacture radio components. It was also recommended in the report that the Director of Industries and Commerce, Madras, should examine the claims of the units making theatre type speakers at Vellore *de novo* and render it all assistance. This recommendation should be implemented by the Director of Industries and Commerce.

(5) *Bicycle parts and accessories.*

236. Components of bicycles such as crank wheel axles, back and front wheel axles, cones, spokes, pedals, brakes, handles and frames are proposed for manufacture in the district.

237. *Industry prospects.*—At present only bicycle carriers are made by three small scale units. These units being very small, their combined production amounts only to Rs. 16,000. All the

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units are working to about 75 per cent of their capacity. The district demand for parts and accessories is reported to be in the neighbourhood of Rs. 4 lakhs. There is a big gap between the current annual requirements of bicycle parts and accessories and their production within the district. This gap is now filled by imports from Bombay, Ludhiana, Delhi, Kanpur, etc. While this is the current demand, additional demand for bicycle assembly unit set up at Vellore as an adjunct to the General Purpose Engineering Workshop under the scheme of the Development Commissioner (Small-Scale Industries) for decentralised development of bicycle industry in India. The scheme provides for the setting up of small units ancillary to the assembly shop for the manufacture of the following components :—

- (a) Frames and fork parts.
- (b) Chain wheel and crank.
- (c) Axles.
- (d) Handles and frames.
- (e) Pedals.
- (f) Brakes.

238. Based on an assessment of the requirements of components for a new cycle, the value of demand for parts and accessories from the bicycle assembly unit may be estimated as Rs. 3 lakhs. Field Investigation conducted in the district in regard to bicycle parts and accessories, discloses that demand will increase at an annual rate of 10 per cent to 15 per cent per annum. This is corroborated by the findings of the recent market survey of bicycle parts and accessories conducted in the Southern Region by the Small Industries Service Institutes, Madras. Besides this demand in the district, the current import restrictions on bicycle parts is another factor, contributing to the creation of a climate conducive to the growth of the industry. It may be mentioned here that chains, hubs, fork head fittings and bottom bracket fittings, are proposed to be imported for the bicycle assembly unit.

The opportunity for undertaking production of the above items will also arise later on when their imports are progressively restricted.

239. *Development programme.*—It is strongly recommended that one or two ancillary units may be started at Vellore to supply the components to the bicycle assembly units. Simultaneously the existing three units may be assisted in expanding their capacity so that they can meet the needs of the assembly unit for bicycle accessories such as stands and carriers.

(6) *Link clips.*

240. Link clips are metallic fastners used to fix electric wires or cables in position. They may be either of tin or brass.

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241. *Industry prospects.*—The State Government has evolved programmes for electrifying all the villages in the district. With the pace of electrification quickening, there is bound to be a great demand for link clips. At present there is only one unit manufacturing link clips in Madras State. The district demand is currently met by imports from Bombay and Delhi. The annual demand for link clips is round about Rs. 50,000. Accordingly to an *ad hoc* survey conducted of link clips in Madras City, the annual State demand is estimated as 7,565,000 boxes. There is thus ample scope for new units in the industry. A box of 100 clips is sold at 22 nP. if made of tin and 56 nP. if made of brass. The investment required for starting the industry (Rs. 17,000) is within the means of a small entrepreneur—vide Appendix VI. The entire production requires only semi-skilled labour.

242. *Raw materials.*—The raw material required for link clips is strips of tin or brass. Tin sheets have to be imported but brass sheets are available with dealers in Madras City.

243. *Development programme.*—There is only one unit in the industry at present. Another unit has already been recommended for Coimbatore. Considering the large demand for link clips (7,565,000 boxes), a unit with a capacity of 2,000 gross boxes per year may be started at Vellore.

(7) Wire nails.

244. From the point of view of demand alone, this industry offers prospects of manufacture in the district. Even though the Licensing Committee has recorded that there is enough licensed capacity in the wire nails industry and consequently no new licences should be granted to new units, it has no objection to small-scale units starting the industry, provided they are sure of obtaining the required raw materials.

245. *Industry prospects.*—It is in this context that the scope for the industry is examined here. In Gudiyatham, a new unit is being set up in rented premises. All the preliminaries like purchasing of machines, applying for casual quota, etc., have been completed and the unit expects to start production shortly. Its capacity is expected to be 200 tons of wire nails per annum. The current demand for wire nails in the district is estimated as 230 tons valued at Rs. 3 lakhs. It is understood that the unit's application for casual quota of steel wire (5 tons a month) is under the consideration of the State Industries Department.

246. In view of the backwardness of the district, and the adequacy of the district demand to sustain a unit, it is strongly recommended that the unit's application for quota may be favourably considered.

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(8) *Printing roller composition.*

247. Printing roller composition is used for transferring printing ink from the ink roller or ink well to the face plate or to the type face. The composition usually comes in blocks. The printers melt this composition in a water bath and apply the liquid in the form of thin layer over the printing roller. Several layers are thus built up to form suitable thickness.

248. The material used for the roller composition must be resistant to all ingredients of the ink with which it comes into **contact**, resilient enough to conform to the type face or plate and also tough and lasting. There are various grades of roller composition, chief among them being hard, medium and soft.

249. *Industry prospects.*—The industry is not yet developed in the State. It is understood that there is an unorganised unit in Madras City manufacturing printing roller composition. Due to paucity of finance, the unit is not producing the item regularly. The industry is eminently suited for location in the district on account of the availability of some of the essential ingredients of the above composition, namely, glue and sugar. Glue will be available from the glue industry in the district. Sugar can be obtained from the co-operative sugar factory at Ambur. Only glycerine needs to be imported from outside the district. At present, the requirements of this item in the district are met by imports. The current demand may be placed at Rs. 50,000 per annum.

250. *Development Programme.*—An enquiry regarding printing roller composition in Madras City has revealed that a unit working away from the sources of raw materials can easily earn a 6 per cent margin of net profit. A higher margin of profit can therefore be reasonably expected of a unit if established near the source of essential raw materials. There is scope for the establishment of a unit for the manufacture of printing roller composition in view of the availability of glue, the essential material in the district. This unit may also cater to the requirements of printing presses outside the district. It may be advantageously located at Ranipet where the glue industry is concentrated.

(9) *Paper.*

251. The State Industries Department may explore the possibility of encouraging paper industry out of bagasse or in the alternative out of hill-grass grown abundantly in the district.

252. *Industrial prospects.*—The Paper Manufacture out of bagasse has yet to develop in Madras State. The reason is that bagasse, the fibrous residue of sugar production is being used as feeder for the boilers. It is estimated that about 10 per cent sugar cane crushed go waste in the form of bagasse. Based on this estimate, bagasse that will be available from the co-operative sugar factory at Ambur, will work out to 80 tons per day. It is learnt that the unit at Ambur intends using bagasse for feeding its boiler and that only 20 per cent may be available for conversion

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into paper pulp. If it is not found feasible to manufacture paper out of bagasse for reasons mentioned above, then the manufacture of paper out of a variety of hill grass known locally as 'Manjampul' may in the alternative be considered. 'Manjampul' grows in abundance in the hilly part of the district especially in Tirupathur taluk adjoining the Salem—North Arcot boundary. Its exact availability is yet unknown. Paper is in great demand in the district, especially from the Beedi industry, the average annual consumption being 1,150 tons, valued at Rs. 21 lakhs. The demand is met by paper imported from West Bengal, Mysore and Kerala States.

253. *Development programme.*—A unit with a daily capacity of 5 tons can be started in the district. The location of the unit will depend on the raw material to be used for the purpose. If reliance is placed on bagasse, the best location for the proposed unit will be Ambur. Tirupathur may be a suitable centre for the industry if the hill grass is to be utilized for paper manufacture. In any case, the Forest Department of the State should immediately take up a study of the availability of the hill grass grown in the district before paper manufacture out of the hill grass is considered.

254. The investment for a 5 ton unit is about Rs. 12 lakhs.

10. *Crown cork.*

255. Manufacture of crown corks may be taken up in the district. The industry is suggested, in the context of the huge demand prospects in Madras State.

255-A. *Industry prospects.*—(a) The district demand for crown corks is worth only Rs. 7,000. The industry appears to have prospects for development in the district due to the following reasons : (a) the great demand for crown corks in Madras city and Salem and the contiguity of the district to these sources of demand, (b) the need for gradual replacement of codd's bottles (bottles with marble glass) by bottles with crown cork from the stand-point of safety (c) the eagerness of some of the dealer in aerated waters in the district to take up manufacture of this item. If on the ground of safety, codd's bottles are to be replaced, an additional demand worth Rs. 3,000 may emanate from the district. The total district demand will then be about Rs. 10,000. At present demand for crown corks in the district is met by two dealers. According to them the annual demand for crown cork in the district has been increasing at 10 per cent per annum and that the future demand will increase, on account of the possible replacement of codd's bottles at the rate of 15 per cent per annum. The prospect sheet on crown cork recently prepared by the Small Industries Service Institute, Madras, has indicated scope for 5 or 6 units in the State on the basis of demand. The product is a simple one and is suitable for manufacture in the small-scale sector. It neither requires any high technical skill nor does it involve the use of complicated machines.

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256. *Development Programme.*—A unit with a capacity of 2.5 lakhs gross corks can easily be set up in the district. The unit may be located at Tiruvannamalai because of the popularity of areated water in cork bottles there and its contiguity to the source of demand for crown corks, namely, Salem district.

257. The two raw materials required for the manufacture of crown corks are tin sheets and cork discs. Cork discs can be had from Messrs. India Cork Mill, Bombay. But there is difficulty in obtaining sufficient quantity of tin sheets since only one unit in India is manufacturing this item. It is, therefore, imperative that the unit proposed should arrange with the Director of Industries and Commerce, Madras State, for the supply of sufficient tin sheets before starting production.

258. *Investment particulars.*—The approximate investment required is Rs. 1.95 lakhs, of which Rs. 95,000 represent the working capital. Details of machinery for the manufacture of crown corks are given in Appendix IV.

259. It is learnt that the National Small Industries Corporation is not supplying machinery on hire-purchase for the manufacture of crown corks. In view of the excellent prospects for this industry in Madras State, it is recommended that the National Small Industries Corporation should reconsider their original decision and supply machinery for the manufacture of crown corks.

(iii) BASED ON INDUSTRIAL WASTE.

(11) *Industrial Alcohol.*

260. Manufacture of industrial alcohol from molasses, the waste product of sugar industry is suggested.

261. *Industry prospects.*—The sugar factory under construction near Ambur, provides the scope for a unit to distill alcohol from molasses. The sugar factory has a licensed capacity for crushing 800 tons of sugarcane a day. It is learnt that about 10 per cent of sugarcane crushed goes to waste in the form of molasses. On this basis the quantum of waste works out to 80 tons per day. The yield of alcohol from a ton of molasses is worked out at 57.16 gallons*. On this basis the extraction of alcohol from the molasses which can be obtained from the Sugar factory will be approximately 4,573 gallons per day or 1,371,900 gallons per year. There is at present only one unit distilling alcohol from molasses in the State. The present distilling capacity of alcohol in the country is of the order of 29.4 million gallons per year. The draft outline of the Third Five-Year Plan, envisages expansion in the installed capacity in the industry to 60 million gallons by 1965-66. Therefore there is good scope for starting another unit in the district in the vicinity of the sugar factory near Ambur.

* Please refer Commerce issue of 6th August 1960, Page 243—"Sugar Industry and Molasses Disposal."

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262. *Investment particulars.*—According to the Scheme * on industrial alcohol the total investment required for starting an economic unit is Rs. 3,81,060 of which the working capital will be Rs. 33,060 and the rest fixed capital. The cost of machinery and equipment alone will come to about Rs. 3 lakhs.

12. *Leather Board.*

263. Leather boards are used mainly in the making of insoles, stiffeners, mid soles, heel lifts, etc., for the footwear industries and of leather goods such as camera cases, hand bags, etc. Shavings and trimmings from the tanneries which form the raw material for the industry are at present used as manure.

264. *Industry prospects.*—Leather boards are manufactured only to a limited extent in the country. In Madras State only one unit has been granted licence to manufacture leather boards. North Arcot district is a very important area for tanning. In the district alone there are 131 tanneries functioning at present. The total hides and skins processed in the tanneries during 1959-60 are estimated as 2.35 crores pieces. It is estimated that about 2 lb. of shavings and trimming can be obtained from 100 pieces of hides and skins. Based on this estimate the total quantity of shavings and trimming available from tanneries may amount to 470,000 lb. or roughly 210 tons. According to the regional report on tanning industry, the demand for tanned leather is expected to increase at a cumulative annual rate of 9 per cent. This increase in demand will lead to the fuller utilization of the capacity of the existing units resulting in an increase in the availability of tannery waste like shavings and trimmings.

265. *Development programme.*—One unit can be started with a capacity of 2 tons a week. In view of the existence of a number increased to 4 tons a week. In view of the existence of a number of tanneries at Vaniambadi and the existence of the leather finishing centre near that centre, it is advantageous if the unit is located at Vaniambadi.

266. The Central Leather Research Institute has just succeeded in evolving the process for the manufacture of leather boards. According to their calculations a unit intending to produce 200 lb. of leather boards a day will require equipment worth Rs. 32,000 and a working capital of Rs. 5,000.

APPENDIX I TO XI

SCHEME FOR THE MANUFACTURE OF GLUE.

Process.

Raw materials.—Trimmings and cuttings of raw hides and skins and fleshings from tannery after liming are preferable. Twenty to twenty-five per cent of the glue could be obtained from dry fleshings. The buffalo hide fleshings gives a lesser percentage of glue and high percentage of fats than a cow hide fleshing.

* Please refer to Appendix VI for further details.

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Soaking.—Dried fleshing has to be soaked for a longer time than a fresh fleshings. Soaking in a drum or paddle is quicker than in pits. Soaking in mere water takes longer time. In order to quicken the soaking, 0.5 per cent of teepol (Burmah Shell) and 0.1 per cent of caustic soda could be added in 400 per cent of water.

Soaking in pits will take 3 to 4 days with 3 to 4 handlings per day whereas in drum it could be finished within 24 to 48 hours.

Liming.—After soaking back the fleshlings should be given liming to remove maximum possible amount of fates without any substantial loss of colleges. The washed hides are placed for liming in paddle.

Paddle Liming. —250 per cent of water ..	} on the weight of the soaked back fleshings.
6 per cent of lime ..	
1 per cent of soda ash ..	

Run 15 minutes per hour for about 10 to 12 hours. In liming in drums the percentage of water may be reduced up to 150 per cent and drumming should be 5 minutes per hour for about 4 to 6 hours.

Then, Pit liming—

400 per cent of water ..	} on the weight of the soaked back fleshings, the soda ash is added only for the last 3 days liming.
10 per cent of lime ..	
1 per cent of soda ash ..	

After liming the fleshings are washed in several changes of water until all the free lime has been removed and the wash water is clean.

The fleshings should be stired 6 to 4 times per day for *ten days*.

Deliming.—The fleshings are then put in the paddle to which 1.5 per cent hydrochloric acid (30 per cent) is added in three to four instalments while stirring. The deliming should be done for about 2 hours in paddle or 4 to 6 hours with constant trampling in pit by adjusting the end PH at 5.5 to 5.3.

Extraction.—The flesh boiling tank may be heated in various ways such as by introducing a copper steamcoil into it preferably in the false bottom or by using steam jacketted vat. A provision is made for tapping of the clear extracted liquors at the false bottom.

The washed and delimed fleshings is put in the boiling tank which is filled with it and some quantity of water is added. The steam valve is opened to allow the steam to pass through and heat up the water and glue stock in the vat to a temperature of 60° C for the first extraction. The water and stock are kept at this temperature with stirring with the help of the thermometer which is fitted in the tank.

Occasionally it is required to adjust the PH of the liquor at this stage again to PH 5.3—PH 5.5 to extract further so that fats are further separated. Accumulated floating greasy matters could be scooped out at this stage. The first extraction is done at 60° C. After first extraction is taken out some more water is added to the tank and the mass is heated again for further extraction. Second, third and fourth extraction may be taken at 70°C, 80°C, 90°C taking 4 hours for each extraction. The last extraction can be used as the medium of first extraction of the next batch of fleshings and hide trimmings. The higher the temperature and the longer the stock is exposed to it the lower is the quality glue. Hence it is advisable to extract the stock quickly and at as low a temperature as is commensurate with good operation.

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Treating the liquors with chemicals.—The liquors are collected in a storage tank. Chemical and mechanical treatment are resorted to secure extremely clear jellies. The chemical method consists in forming within the liquors a flocculant precipitate which tends to absorb and carry down with it the turbidity producing particles. Alum, phosphoric Acid or Sulphurous Acid followed by milk of lime and blood or egg alumin are used for this purpose of 1 per cent aluminium sulphate on the weight of the liquor is taken dissolved in water and added slowly with vigorous stirring to the hot glue liquor. Preservative like zinc sulphate is added to the glue solution to preserve the stock without any bacterial action.

The treated solution is filtered under 25 lb. per square inch pressure with filter aids like paper pulp bone charcoal fuller's earth wood pulp or cotton cellulose.

Concentration.—The filtered solution is concentrated in evaporators. The concentrated solution is collected in tubs. The concentrated liquor is dried with the help of the drum drier called celin crockener of glue drier. The drum of the drum drier is heated with steam fed inside the rotary drum. The concentration of glue solution is run on the outer surface of the drum where it dries into this films. The films are scraped off by a fixed scraping blade and they are broken into flakes. The flakes may be powdered with the help of Disintegrator.

Scheme for the manufacture of glue—

Capacity 1/2 ton (10 cwt.) of glue per day and 300 working days are taken in a year for calculation.

Non-recurring expenditure—

	RS.
1 Land 1/2 acre (22,000 s.f.)	2,500
2 Buildings 50' x 20' at Rs. 15 per s.f. including constructions 40 pits at 7' x 5' x 4' sizes—2 Nos.	30,000
3 Well for the water with 6' diameter	2,000
	34,500
	say 35,000

Machinery—

	RS.
1 Paddles 7' x 5' with 10 h. p. motor for liming and deliming at Rs. 3,000—3 Nos.	6,000
2 Vertical cross tube steam boiler 10 h.p. with normal steaming of 600 lb. per hour at Rs. 10,000—2 Nos. ..	20,000
3 Flesh boiling tank with 8' height and 6' diameter with covering without leakage of steam at Rs. 1,500 (extractor) stainless steel—3 Nos.	4,500
4 Filter press with 3' diameter accessories	2,000
5 Equipment for bleaching and clarification, etc.	1,000
6 Aluminium evaporators 12' height with copper pipes inside including high vacuum pump (triple effect) with 12 h.p. motor—3 Nos.	16,000

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	RS.
7 Drum drier for drying the glue with 10 h.p. motor ..	15,000
8 Water pump set with 5 h.p. motor for well	2,000
9 Disintegrator—7" size with 3 h.p. motor	1,500
10 Trolleys, office furniture, etc., and other miscellaneous instruments	1,500
11 Electrification and erection charges	5,000
12 Jeep with trailer or lorry	18,000
	93,500
or say ..	93,000

Total Non-recurring expenditure—

	RS.
1 Land and buildings	35,000
2 Machinery.. .. .	93,000
	1,28,000

*Recurring expenditure.**Staff pay and allowances per year—*

	No.	RS.
1 Chemical engineer-cum-manager on 250-500	1	3,960
2 Supervisor (technical) on Rs. 160-330	2	5,640
3 Operators on Rs. 80-220	3	5,112
4 Upper division clerk Rs. 80-220	1	1,704
5 Workers on Rs. 60-130	15	23,400
6 Watchman on Rs. 30-35	1	960
7 Peon on Rs. 30-35	1	960
8 Driver on Rs. 60-130	1	1,560
		43,296
or ..		44,000

Cost of raw materials for one year—

	RS.
1 Cost of dried fleshings and hide trimmings at Rs. 170 per ton for 750 tons in a year of 300 working days ..	1,27,500
2 Chemicals such as lime, teepolhydro-chloric acid, etc. ..	24,000
3 Fuel (coal)	27,500
4 Current charges	4,500
5 Stationery and contingencies, postages, etc.	1,000
6 Repairs and renewals	1,000
	1,86,500
or	1,87,000-00

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1 Raw materials	Rs. 1,87,000
2 Staff salaries	44,000
	2,31,000

Working capital required.—With 4 circulations in a year the requirement of working capital is Rs. 57,750-00 or 58,000-00.

Total investment required—

1 Non-recurring expenditure	1,28,000
2 Recurring expenditure for 3 months	58,000
	1,86,000

Total expenditure.—

	RS.
1 Cost of raw materials	1,87,000
2 Staff salary and allowances	44,000
3 10 per cent depreciation on machinery	9,300
4 5 per cent interest on both recurring and non-recurring expenditure.	9,300
5 5 per cent depreciation on building	1,625
	2,51,225

OR

Receipts.—20 to 25 per cent glue could be obtained from dry fleshings only 20 per cent of the yield is taken for calculation. The total quantity of glue would be 150 tons. Minimum value of the glue is taken for calculation at Rs. 1,800 per ton and 40 per cent of the dried weight of the fleshings is taken as manure at Rs. 10 per ton for calculation after extraction.

	RS.
1 Total cost of the glue at Rs. 1,800, per ton for 150 tons per year Rs. 1,800 × 150.	2,70,000
2 Total receipts on the shape of manure at Rs. 100 per ton for 300 ton in a year.	3,000
	2,73,000

Nett profit total receipts ..	2,73,000
Total expenditure ..	2,52,000
	21,000

$$\text{Percentage of profit} \quad \dots \quad \frac{2,100 \times 100}{681,000} = 11.2 \text{ per cent.}$$

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APPENDIX II.

*Scheme for the manufacture of Chokes and Transformers
(for Fluorescent tube lights and radios).*

I. *Introduction.*—With the various hydro-electric projects taking shape in this country there is every possibility that in the near future electricity will be made available to all the villages in India.

Apart from the initial cost, a fluorescent tube light has various advantages over the conventional incandescent lamp. More and more people to-day are switching over to this type of lighting, whether it be in homes, factories or in cinemas. As such the demand for chokes which form a very important part of a tube light fixture, is bound to increase. The manufacture of radio components such as mains, transformers, output transformers, etc., fall in line with the same production, the same machinery and materials being used.

This scheme is prepared on the basis that the turn out at this factory will be:—

1 Fluorescent tube light chokes	.. ..	500	per month.
2 Output transformers for radios	.. ..	500	Do.
3 Mains transformers for radios..	.. ..	500	Do.
4 Bell transformers	.. ..	500	Do.

The details of expenditure envisaged in this scheme are as under:—

II. Building (on rental basis).

3,000 sq. ft. at Rs. 900 for 10,000 sq.		Rs. 270
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III. Machinery and equipments .. Approximate prices including accessories such as chokes steel holders, etc.

1 Eccentric Press—20 tons capacity with automatic strip feed, Type VSZ 240/2 with of strips 80–240 mm. Length of strips 2,000 mm.	Rs. 20,000
2 Eccentric shear for manual operation. Useful length 20–30 mm. To cut sheet thickness up to 1.2 mm.	8,000
3 Repetition lathe type SV 65. Height of centres 65 mm. Swing over bed. 130 mm. Max. distance between 260 mm. spindle nose and tailstock Red. Length 500 mm. Spindle bore 10 mm.	3,500
4 Automatic coil winding machine Type FH 88 K with automatic layering trip and speed reducing device. Max. winding width 340 mm. Min. winding width 4 mm. Max. winding dia. 180 mm.—2 Nos.	6,000
5 Baking Oven Thermostatically controlled 3 K.W. Temperature range 50°C to 200°C. Size ¼ sq. ft.	3,000
6 Basin for dipping ½ m. ³	200
7 Air compressor unit with spraying guns	4,000
8 Spraying chamber with exhaust fan—size 1 m ³ .	1,000
9 Double ended Grinder 6" dia.	2,000
10 Table Drill ½" cap.	1,500
Total ..	49,200

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RS.

IV. Tool Room—

- 1 Micrometer 0 to 1" (one turn $\frac{1}{2}$ mm. only)
- 2 Bench vices 120 mm. 4·7"
140 mm. 5·5"
150 mm. 6"
- 3 Hammers 50 gms. 1·7 oz.
150 gms. 5 oz.
400 gms. 13·6 oz.
- 4 One complete set of Spanners.
- 5 One set of Chisels of various sizes.
- 6 Hand tapping attachment and tools 3 to 10 mm. (.12 to .14 inches).
- 7 Set of Drills 1 to 12·5 mm. up to .5 inches.
- 8 Machine vice.
- 9 Filing vice.
- 10 Hacksaw frames with commutator saws.
- 11 Set of files (fine and rough).
- 12 Portable Shear 6".
- 13 Wooden Hammers.
- 14 Side Cutter Pliers.
- 15 Set of Screw drivers 2 to 8 mm. (.8 to .3 inches).
- 16 Gazolene lamp.
- 17 .5 soldering irons 200 watts each one 500 watts.
- 18 Soldering bath.
- 19 One set of Rubber Gloves.
- 20 Pulley Blocks.
- 21 Rivetting pliers and tubing pliers.
- 22 Venier Calipers (Inside and outside) 3 sets, one set with calibration.
- 23 Vice Grips 160 mm. (6")
260 mm. (10")
- 24 Inside and outside calipers.
- 25 Metal scale.
- 26 Two Trolleys.
- 27 Bench Scissors.
- 28 5 knives (Winding Tools).

Total ..	<u>5,000·00</u>
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V. Testing equipment—

- | | |
|---|-------|
| 1 High voltage test equipment 500 to 2000 volts .. | 3,000 |
| 2 Portable wheatstone bridge | 300 |
| 3 AC/DC Switch board as per our Design
Drawing No. SISI-221-ELECT-50 (Panel No. 3) | 5,000 |

Total ..	<u>8,300</u>
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VI. Furniture and office equipment—

	RS.
1 Office furniture, typewriters, drawing equipment, etc.	3,000
2 Work benches, store racks, etc.	2,000
Total ..	<u>5,000</u>

VII. Raw Materials—

A. For 500 Fluorescent tube lights chokes per month—

1 Silicon steel sheets at Rs. 150 per cwt. 100 lb. ..	134
2 Super enamelled wire at Rs. 6 per lb. 100 lb. ..	600
3 Annealed steel sheets gauge 22 at Re. 0.50 lb. per 125.	63
4 Insulating paper L.S.	90
5 Screws, nuts, bolts, etc., L.S.	75
6 Paints and silicon insulating raisin varnish L.S. ..	175
7 Connection wires L.S.	50
8 Paxolin or fibre sheets for coil formers L.S. ..	125
9 Filling compound L.S.	75
Total ..	<u>1,387</u>

B. For 500 output transformers for radios per month—

1 Silicon steel sheets at Rs. 150 per cwt. 250 lb. ..	335
2 Super enamelled wire at Rs. 6 per lb. 132 lb. ..	800
3 Annealed steel sheets gauge 22 at Re. 0.50 per lb. 210 lb.	105
4 Insulating papers L.S.	90
5 Screws, nuts, bolts, etc. L.S.	75
6 Paints and silicon insulating raisin varnish L.S. ..	265
7 Connection wires L.S.	75
8 Paxoline or fibre sheets for coil formers L.S. ..	100
Total ..	<u>1,845</u>

C. For 500 mains transformers for radios per month—

1 Silicon steel sheets at Rs. 150 per cwt. 1,000 lb.	1,340
2 Super enamelled wire at Rs. 6 per lb. 525 lb. ..	3,150
3 Annealed steel sheets gauge 22 at Re. 0.50 per lb. 375 lb.	185
4 Insulating papers L.S.	175
5 Screws, nuts, bolts, etc., L.S.	95
6 Paints and silicon insulating raisin varnish L.S. ..	300
7 Connection wires L.S.	100
8 Paxoline or fibre sheets for coil formers L.S. ..	150
Total ..	<u>5,495</u>

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*II. Raw Materials—cont.**D. For 500 bell transformers per month—*

	Rs.
1 Silicon steel sheets at Rs. 150 per cwt. 250 lb.	335
2 Super enamelled wire at Rs. 6 per lb. 125 lb. ..	750
3 Annealed steel sheets gauge 22 at Re. 0.50 lb. 125 lb.	63
4 Insulating papers L.S.	90
5 Screws, nuts, bolts, etc., L.S.	75
6 Paints and silicon insulating raisin varnish L.S.	225
7 Connection wires L.S.	75
8 Paxolin or fibre sheets for coil formers L.S. ..	100
Total ..	1,713
Total, raw material, cost per month ..	10,440

VIII. Staff—

1 Manager—Director at Rs. 1,000 ..	1	1,000
2 Assistant Manager-cum-Designer at Rs. 800.	1	800
3 Foreman (Electrical) at Rs. 350 ..	1	350
4 Foreman (Machanical) at Rs. 350 ..	1	350
5 Shopmaster at Rs. 600	1	600
6 Technical for testing at Rs. 450 ..	1	450
7 Skilled workers at Rs. 175	6	1,050
8 Semi-skilled workers at Rs. 120 ..	3	360
9 Draughtsman at Rs. 250	1	250
10 Store-keeper-cum-clerk	1	250
11 Stenographer at Rs. 200	1	200
12 Peons at Rs. 75	2	150
13 Coolies at Rs. 80	2	160
14 Chowkidar at Rs. 80	1	80
	23	6,050

*IX. Capital Investment—**A. Non-recurring expenditure—*

1 Machinery and equipments	40,200
2 Testing equipments	8,300
3 Tool room	5,000
4 Furniture and office-equipment	5,000
5 Installation charges (10 per cent of machinery and equipment)	5,750

Total ..	73,250
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*IX. Capital Investment—cont.**B. Recurring expenditure (three month basis)—*

				RS.
1 Raw materials (10440×3)	..	..	..	31,320
2 Staff (6050×3)	..	..	..	18,150
3 Rent for building (270×3)	..	..	..	81
	Total	..		73,250
	Total, Capital Investment	..		1,23,530
	Say	..		1,25,000

X. Cost Analysis (per month)—

1 Raw materials	..	..	..	..	10,440
2 Staff	..	..	..	..	6,050
3 Rent for building	..	..	..	..	270
4 Depreciation on machinery and equipment at 10 per cent.	..	..	..	..	479
5 Interest on Capital at 6½ per cent.	..	..	..	..	651
6 Marketing, publicity, postage, etc.	..	..	..	..	2,500
7 Factory overhead (Electricity charges, etc., at 12½ per cent.	..	..	..	..	572
	Total	..			20,562

Sale proceeds—

500 Fluorescent tube light chokes at Rs. 6	..	3,000
500 Output transformers for radios at Rs. 8..		4,000
500 Mains transformers for radios at Rs. 25..		12,500
500 Bell transformers at Rs. 6		3,000
	Total ..	22,500

Margin of profit—say 8 per cent	..	..	..	1,938
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XI. Conclusion.—It will be seen from the above scheme that the stampings as well as the coil formers are to be made at the factory. As such it is important for manufacturers taking up this production to assure themselves that silicon steel sheets for the stampings and paxolin or fibre sheets for the coil formers will be readily available.

APPENDIX III.

SCHEME FOR THE MANUFACTURE OF HORSE SHOE/
BUOLLOCK SHOE NAILS.*Introdnction*

These nails are of special design meant for fixing shoes to the hooves of animals. They are rectangular in cross-section, with slight taper along the length, finally ending in a point with a short taper edge.

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The head, which is also rectangular in section, tapers gradually down to the stem and is inclined to the axis at an angle of three degrees on one side. These nails are made of mild steel bright annealed open hearth square wire of carbon content not exceeding 18 per cent silicon 0.2 per cent, manganese 0.5 per cent, sulphur and phosphorous 0.03 per cent. The above quality steel may be available indigenously. The present supply falls short of demand and there is possibility for development of this industry in this country.

Good quality nails can be economically made only in an automatic machine. These machines are not produced in India and are to be imported. Nails of various sizes are required and the complete details of tolerances, dimensions, etc., are specified in drawing No. IND/GS/165 which may be available from the Director-General of Supplies and Disposals Office (Inspection Wing), New Delhi, or Chief Superintendent of Development, Technical Development (Stores) P.O. No. 127, Kanpur. A strict adherence to dimensional tolerances and very smooth finish is essential to prevent damage to the hooves of the animals.

	<i>Recurring expenses in</i>	<i>Non-recurring expenses in</i>
	RS.	RS.
I Land and building—		
Rented building having covered area approximate 3,000 sq. ft.	300	..
II Machinery and equipment—		
1 Horse Shoe/Bullock shoe nail head punching machine (90 nails per minute).	..	46,000
2 Cutting machine for stretching, chamfering two edges, and pointing 1.	..	24,000
3 Three sets of operating dies for above machines.	..	4,000
4 One special purpose Eccentric Power Press to flatten the head.	..	6,500
5 Annealing and Colouring Oil Fired Furnace with Pyrometer.	..	5,000
6 $\frac{1}{2}$ cap. Bench type elec. drill with vice, tools, etc.	..	1,000
7 4 Cantre Lathe with height of centre 5", swing over bed 10" distance between centres — 27" suitable for 400/440 V, 3 phase, 50 cycles elec. motor.	..	3,000

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Recurring expenses in *Non-recurring expenses in*

II. Machinery and Equipment—cont.

	RS.	RS.
8 Double-ended Electric Bench Type Grinder with electric motor suitable for 400/4 0 V, 3 phase, 50 cycles supply, complete with emery wheels, guards, etc., max. size of wheel 8" dia. × 1".	..	500
9 Barrel Polishing equipment	..	1,000
10 Erection charges	..	1,000
Total ..		97,000

III. Staff salary (per month) including allowances—

1 Foreman at 250-500	1	325
2 Die Fitter at 160-330	1	245
3 Machine Operators at 80-220 ..	3	780
4 Assistant Semi-skilled workers at 60-130.	6	720
5 Unskilled workers at 35-50 ..	4	320
6 Manager at 250-500	1	325
7 Clerk-cum-Typist-cum-Accountant at 60-130. ..	2	240
8 Chowkidar at 35-50	1	95
9 Sweeper at 30-35	1	85
Total ..	23	3,135

Recurring expenses in approxi- *Non-recurring expenses in approxi-*

RS.

RS.

IV. Raw materials (per month)—

1 4 tons of M.S. wire (bright annealed open hearth square wire) at Rs. 1,000 per ton.	4,000	..
2 Consumable stores, tools, maintenance, chemicals, etc.	500	..
Total ..	4,500	..

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	<i>Recurring expenses in approx- imation.</i>	<i>Non-recurring expenses in approx- imation.</i>
	RS.	RS.
V. Production expenses—		
1 Rent	300	..
2 Salary	3,135	..
3 Water and Electricity	500	..
4 Advertisement	250	..
5 Packing expenses	750	..
6 Office contingencies	150	..
7 Raw materials	4,500	..
	9,585	..
8 Depreciation charges on machinery and equipment at 10 per cent.	808	..
9 Interest on capital at 5 per cent.	524	..
	Total ..	..
	10,917	..
VI. Sales proceeds—		
75 cwt. of finished goods per month (25 working days of 8 hours/day) at Rs. 160.00 per cwt.	..	12,000
Profit: 12,000.00 — 10,917.00 ..	..	1,083
Approximate percentage profit ..	..	10 per cent.
VII. Capital investment—		
1 Non-recurring expenses on machinery and equipment.	..	97,000
2 Recurring expenses on rent, salary, water and electric, advertisement, packing contingencies and raw materials. — 9,585.00 × 3 months — 28,755.00.	..	28,755
	Total ..	1,25,755

Say Rs. 1,26,000.00

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APPENDIX IV.

SCHEME FOR MANUFACTURE OF CROWN CORK.

Capacity in view : 1,000 Gross (12×12) per days of 8 hours working.

Manufacturing chart.

Machines required.

- | | |
|--|--|
| 1 Plain lacquering of tin sheets. | Hand operation with brush or spraying equipment. |
| 2 Cut tin plate into suitable sizes. | Foot shearing machine. |
| 3 Punching and forming crown in multiples (say 5 in one stroke). | Power Press. |
| 4 Cork disk (a) Disk cutting | Cork disk cutting machine. |
| inserting (b) Inserting .. | Cork disk inserting machine. |
| process (c) Fixing .. | Cork disk fixing of sticking machine. |

FINISHED CROWN CORK—PACKING.

Specifications of machines : (Japanese make—Supply quoted by Batliboi & Co., 3/153, Broadway, Madras-1.)

		Each.	
		RS.	RS.
1 set	Power Press about 10 ton capacity complete with 1 h.p. motor and mould with 5 dias, stroke per minute 70, production capacity 168,000 per day, measurement 100 c.ft. approximately.	6,520	6,520
2 sets	Cork disk cutting machine with $\frac{1}{2}$ h.p. motor, measurement 30 c.ft. approximately.	930	1,860
2 sets	Cork disk inserting machine with $\frac{1}{2}$ h.p. motor, measurement 30 c.ft. approximately.	4,730	9,460
2 sets	Cork disk sticking machine with 1 h.p. motor, measurement 40 c.ft. approximately.	5,340	10 680
1 set	"Yoda" make Cat No. 468, Tin plate shearing machine for Treadle drive with one set spare shearing knives—Maximum width of cutting 30 inches. Measurement 35 c.ft. approximately.	1,445	1,445

Total cost 29,965

Approximately 30,000

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Number of workmen required.

	Skilled (rate Rs. 4 per day per man).	Unskilled (rate Rs. 2 per day per man).	Rs.
1 Laquering of tin plates ..	1	2	4
2 Power Press	1	1	6
3 Cork disk cutting machine ..	2	2	12
4 Cork disk inserting machine ..	2	2	12
5 Cork disk sticking machine ..	2	2	12
6 Tin plate shearing machine ..	1	2	8
7 Packing and general	..	2	5
8 Supervisor at Rs. 150—10—250 ..	1	2	5
9 Foreman at Rs. 180—15—450 ..	1	..	6
10 Manager (Commercial) at Rs. 180— 15—450.	1	..	6
11 Clerk-cum-Typist at Rs. 90—5—150.	1	..	3
	12 + 13 = 25		78

	Rs.
Total, wages and salaries per day for 25 ..	78.00
Factory building—Covered area planned 1,000 s.ft. cost at Rs. 15 per s.ft.	15,000.00
Furniture, office and other equipments	1,000.00
Machinery erection, installation and electric wiring ..	4,000.00
Total ..	20,000.00

Cost of raw materials—

	Rs.
Tin plate assuming 1 ton yields 2 to 3 thousand gross.	600 per day.
Cork sheet for 1,000 gross	240 ..
Cost of Laquer, Rasin, Lub. oil, greese and other stores.	100 ..
Cost of electricity	5 ..
Cost of stationery and sundry requirements ..	50 ..
Total ..	995 ..

*Production cost per 1,000 gross crown corks recurring expenses for one
day—*

	Rs.
(a) Total wages and salaries	78
(b) Total cost of materials and supply	95

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Non-recurring expenses for one day—

	RS.
Interest and depreciation on machine (Rs. 30,000) at 20 per cent recoverable in 300 working days per year.	20 (per day).

Interest and depreciation on land buildings and other investments (Rs. 20,000) at 10 per cent recoverable in 300 working days per year.	7
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Total ..	1,100
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Market selling cost of crown cork at 160 per 100 for 1,000 gross.	1,600
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Profit per day	500 (Approx.)
------------------------	---------------

	RS.
Total investment	50,000
Working capital required for about one month.	30,000
Capital required for starting business ..	80,000

*Tin plate suppliers.**Indigenous supply—*

Tin Plate Company of India (Private), Ltd., 4, Bankshall Street, Calcutta-1.

Imported supply—

1 Tin Plate Dealers' Association (Private), Ltd., 9, Sembudoss Street, Madras-1.

2 Madras Centre Registered Stock Association (MCRSA Ltd.), Armenian Street, Catholic Centre, Madras.

Indigenous tin plate Rs. 1,500 per ton Guage 32.33.

Imported American waste Rs. 800 per ton.

*Cork suppliers.**Imported supply—*

Poppat Jamal and Sons, 182, Broadway, Madras-1.

Indigenous supply after 6 months—

Cork Industries, 92, Bengali Bazaar Road, Madras-16.

Price Re. 1 per sheet (36" x 24" x 1/32")

Cut corks also available from India Cork Mill in Bombay at Rs. 25 per 100 gross.

Machinery Suppliers.

Japanese Make : Batli Boi and Co., 3/153, Broadway, Madras-1.

German Make : Hassler and Sommer, Hassel Brook Street, 25, Hamburg-23.

Crown Cork Manufacturer in Madras State.

National Crown Cork Manufacturing Company, 12/232, New Street Ponmalai Patti, Golden Rock, Tiruchirappalli.

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APPENDIX V.

SCHEME FOR THE MANUFACTURE OF 1,000 GALLONS OF ABSOLUTE ALCOHOL PER DAY.

Introduction.

The development of alcohol industry in India is closely connected with the problem of utilizing the molasses from the sugar factories. On the basis of the programme for expansion of sugar industry in the Second Five-Year Plan, nine lakh tons of molasses will be made available to the alcohol and other fermentation industries. Alcohol finds use as a basic raw material for plastics like polyethylene, polystyrene, cellulose acetate, polyvinyl chloride and solvents like butanol, ether and acetone. It also finds use in the manufacture of items like synthetic rubber and insecticides like D.D.T. The present distillery capacity in the country is of the order of 29.4 million gallons per year. With the increased supplies of molasses it is anticipated that the demand for alcohol will rise to a total of 53.7 million gallons.

It is possible to set up small distillation units having a capacity to manufacture 1,000 gallons of absolute alcohol per day in the vicinity of the sugar factories. These small distilleries as envisaged in the scheme can be operated using indigenous equipment.

*Non-Recurring—***I. Land and Buildings—**

Rs.

Land 1 acre	3,000
Building 4,500 sq. ft. at Rs. 10 per sq. ft.	45,000
Total ..	48,000

II. Machinery and Equipment—

(a) Distillation plant	17,000
(b) Compressor, pipes valves and pumps	20,000
(c) Fermentation and storage tanks	30,000
(d) Boiler 1,600 lb. per hour	20,000
(e) Miscellaneous tools and initial cost of solvent	10,000
(f) Drum and Barrel 2,000 Nos. (returnable hence non-recurring)	25,000

2,75,000

Erection charges at 10 per cent .. 25,000

Total .. 3,00,000

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*Recurring—***III. Raw Materials (300 working days)—**

	Rs.
(a) Molasses 4,800 tons at Rs. 10 per ton ..	48,000
(b) Chemicals (lump sum)	2,400
(c) Benzene loss 300 gals. at Rs. 3 per gal. ..	900

Total ..	51,300
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IV. Staff and Labour (per year)—

(a) Manager-cum-Technologist at Rs. 500 per month.	1	6,000
(b) Chemists at Rs. 200 per mensem	3	7,200
(c) Workers at Rs. 3 per day ..	15	13,500
(d) Accountant at Rs. 200 per month	1	2,400
(e) Clerks at Rs. 100 per month ..	2	2,400
(f) Watchmen at Rs. 60 per month	2	1,440

Total ..	32,940
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V. Other expenses (per year)—

(a) Fuel 900 tons of coal at Rs. 40 per ton ..	36,000
(b) Power and Water	4,000
(c) Repairs and Renewals	5,000
(d) Packing and forwarding	3,000

Total ..	48,000
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VI. Working Capital (3 months)—

(a) Raw materials as per Head III	12,825
(b) Staff and Labour as per Head IV	8,235
(c) Other expenses as per Head V	12,000

Total ..	33,060
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VII. Total Investment—

(a) Machinery and equipment	3,00,000
(b) Working Capital	33,060
(c) Land and Building	48,000

Total ..	3,81,060
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VIII. *Expenditure per year—*

(a) Raw materials (Head III)	51,300
(b) Staff and Labour (Head IV)	32,940
(c) Other expenses (Head V)	48,000
(d) Depreciation on machinery at 10 per cent.	27,500
(e) Depreciation on buildings at 5 per cent.	2,250
(f) Interest on total investment at 6 per cent.	22,864
Total ..	1,84,854

IX. *Returns—*

By sale of 300,000 gals. at 81 nP. per gallon. w/o excise duty.	2,43,000
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X. *Profit and Loss—*

Yearly returns as per Head IX	2,43,000
Yearly expenditure as per Head VIII	1,84,854
Profit per annum ..	58,146

Therefore percentage of profit on total investment—15.2.

APPENDIX VI to XI.

SCHEME FOR THE MANUFACTURE OF LINK CLIPS.

Introduction.

With the advancement and electrification programme of the country there is bound to be a heavy demand for these link clips. This scheme has been prepared to enable the prospective small-scale industrialist to set up a unit for the manufacture of link clips.

All the machinery and tools required for this unit can be obtained from indigenous manufacturers in India and are suitable for the manufacturing link clips of standard quality and grade.

Process of manufacture.—The process of manufacture is quite simple. Thirty or 32 gauge tin sheets are cut into strips of required breadth the guillotine. They are fed on to the inclineable power press where they are cut to the correct size and shape by means of the clips. After they are polished in a polishing barrel to remove all the blue.

The finished articles are then packed in card board boxes usually in grosses.

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Financial implications for the scheme for manufacture of 6,400 gross link clips of sizes $1\frac{1}{2}$ inches, 2 inches and $2\frac{1}{2}$ inches per month:

RS.

A. Non-recurring expenditure—

Plant and machinery—

1 Inclineable Power Press with automatic feeding arrangement complete with $1\frac{1}{2}$ H.P. single phase motor with all electricals 2 Nos.	3,000
2 Treadle operated guillotine 36" 1 No.	1,000
3 Polishing drum hexagonal (wooden 18" long 12" corner to corner with 1 H.P. motor) 1 No.	700
4 Dies for clips one set each three sets of the three sizes $1\frac{1}{2}$ ", 2" $\times$ $2\frac{1}{2}$ ".	3,000
5 Office equipment and furniture	1,900
6 Installation charges	800
Total ..	<u>9,500</u>

B. Recurring expenditure (per month)—

I. Raw materials—

30 or 32 gauge tin sheet—1 ton	1,200
Polishing material	100
Total ..	<u>1,300</u>

II. Wages—

1 Foreman, 1 No.	200
2 Clerk, 1 No.	100
3 Skilled workers, 3 Nos.	300
4 Unskilled workers, 3 Nos.	240
5 Peon. 1 No.	60
Total ..	<u>900</u>

III. Miscellaneous expenses—

1 Rent of building 50' $\times$ 40'	120
2 Electric power	30
3 Packing and forwarding charges	100
Total ..	<u>250</u>

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C. Working capital—

	RS.
Raw materials for three months	3,900
Wages for three months	2,700
Miscellaneous expenditure for three months ..	750
Total ..	<u>7,350</u>

D. Manufacturing cost for 6,400 gross of link clips (per month)—

1 Interest and depreciation on machinery at 16 per cent per annum.	127
2 Interest on working capital at 6 per cent per annum.	37
3 Raw materials	1,300
4 Wages	900
5 Miscellaneous expenses	250
Total ..	<u>2,614</u>
Sale proceed of 6,400 gross clips at Re. 0.50 per gross.	3,200
Cost of manufacture	<u>2,614</u>
Profit per month ..	<u>586</u>